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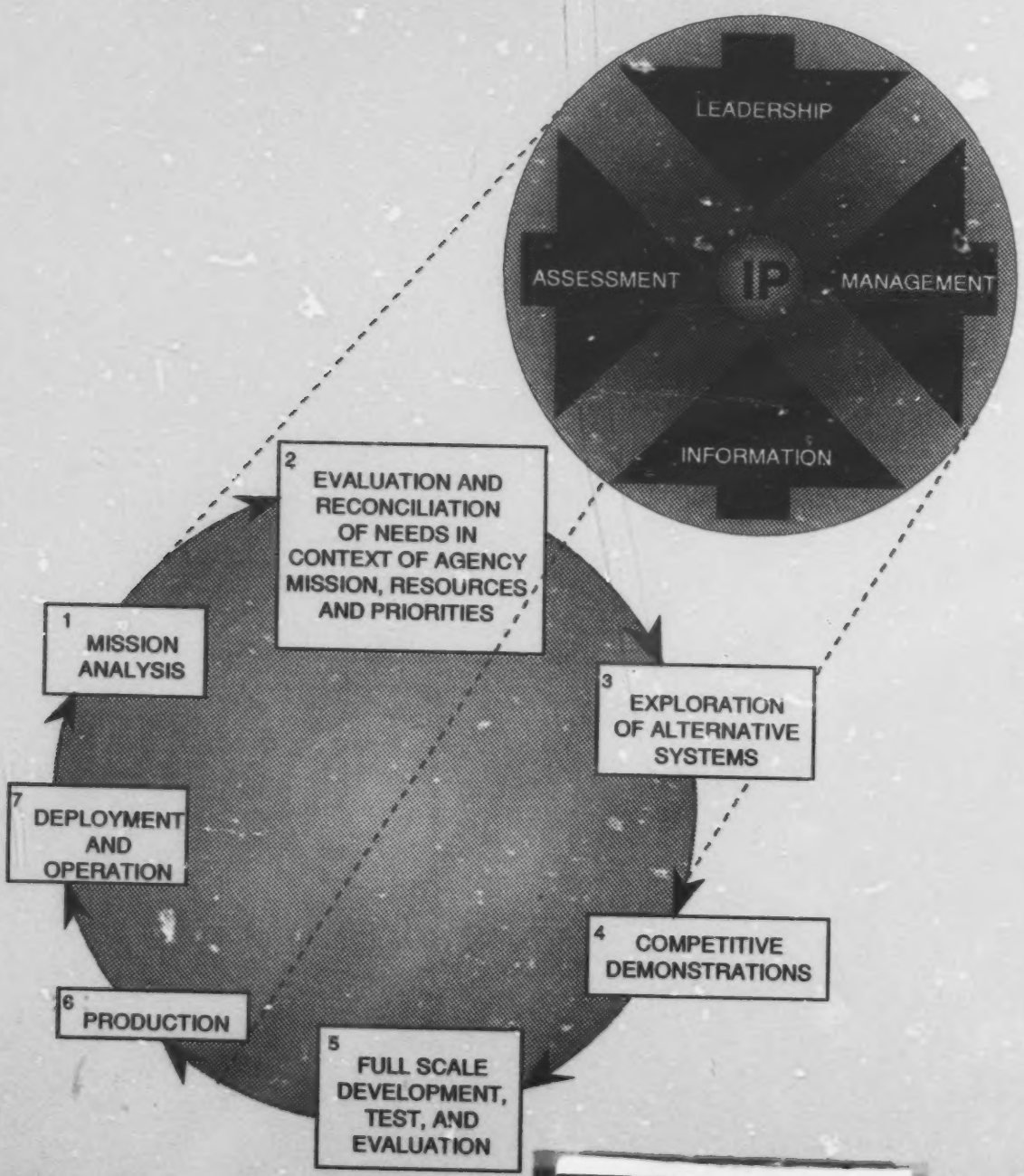
INTEGRATING INDUSTRIAL PREPAREDNESS INTO THE ACQUISITION PROCESS

A GUIDE FOR PROGRAM MANAGERS



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APRIL 1989

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FIRST EDITION
APRIL 1989

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FOREWORD

The American industrial base has been and continues to be a pillar for a strong defense. Two major recent developments have affected that pillar. The first has been the growth of international interdependence. The second has been the increased attention paid to the condition of the industrial base. The military acquisition community must respond to these historical changes and contribute to bolstering the defense industrial base, the highest priority set by the Under Secretary of Defense for Acquisition, Dr. Robert Costello.

This guide suggests methods to make that contribution. It demonstrates "how to think" about preparedness and leads the reader through the maze of DoD and other Government instructions addressing the different aspects of preparedness. The series of important acquisition issues discussed in the guide illustrate the need for a unified effort. The authors describe what might be done to resolve these issues.

I recommend this document as a basis for discussing preparedness issues in acquisition and as a guide to stimulate future actions. Comments regarding this guide may be referred to the DSMC point of contact:

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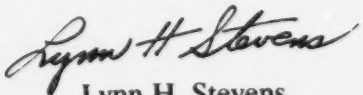


Lynn H. Stevens
Major General, USA
Commandant

TABLE OF CONTENTS

	Page
Foreword	ii
List of Figures	vi
List of Tables	viii
EXECUTIVE SUMMARY	ES-1
PART I: INDUSTRIAL PREPAREDNESS CONCEPTS AND STRUCTURE	
1. INTRODUCTION	1-1
1.1 The Current Situation	1-1
1.2 Effective Production Planning	1-2
1.2.1 Developing System Requirements	1-2
1.2.2 Quantifying Production Capability	1-3
1.2.3 Identifying and Resolving Production Impediments	1-3
1.2.4 Developing Investment Strategies	1-4
1.3 The Integration of Industrial Preparedness Into the Acquisition Process	1-4
1.3.1 Deficiencies With the Traditional IP Program	1-4
1.3.2 A New IP Strategy	1-4
2. THE PM's DILEMMA	2-1
2.1 The Need for Greater Command Emphasis	2-1
2.2 The Need for Holistic Program Management	2-1
2.3 The Need for Effective Analysis Tools and Techniques	2-2
2.4 The Need for Efficient Data Collection Procedures	2-5
3. THE ANATOMY OF THE INDUSTRIAL BASE	3-1
3.1 The Manufacturing Process	3-1
3.2 Mission Area Relationships	3-5
3.3 The Defense Industrial Base	3-6
3.4 Mobilization and the National Economy	3-6
3.5 The International Market	3-9
4. AN OVERVIEW OF THE IPP PROCESS	4-1
4.1 The Industrial Preparedness Planning Process	4-1
4.1.1 The Defense Guidance	4-1
4.1.2 The CINC/Service Critical Items List (CIL)	4-1
4.2 Objectives Of Mobilization Planning	4-1
4.3 Objectives Of Surge Planning	4-2
4.4 The Planned Producer	4-2
4.4.1 Benefits Of Being A Planned Producer	4-2
4.4.2 Register Of Planned Emergency Producers (RPEP)	4-2
4.5 The Armed Services Production Planning Officer (ASPPO)	4-2
4.6 Planning With Prime Contractors	4-2

TABLE OF CONTENTS (Continued)

		Page
	4.6.1 The DD Form 1519 Method	4–3
	4.6.2 The DID Method	4–3
	4.6.3 The DIBP Method	4–3
	4.6.4 Special Studies	4–9
	4.6.5 Updating Plans	4–10
4.7	Multiservice Requirements for A Given Manufacturing Facility	4–10
4.8	When Planned Production Exceeds Plant Capacity	4–10
5.	THE CONCEPT OF GRADUATED MOBILIZATION RESPONSE	5–1
5.1	Background	5–1
5.2	The INDCON Concept and GMR	5–2
	5.2.1 INDCON "Ladder"	5–2
	5.2.2 INDCON Levels	5–2
5.3	GMR Planning Elements	5–4
	5.3.1 Determination of Requirements	5–4
	5.3.2 Establishment of Government Goals and Options	5–4
	5.3.3 Contracting and Resource Management Actions	5–4
5.4	GMR and the Program Manager	5–5

PART II: INDUSTRIAL PREPAREDNESS ISSUES AND ACTIONS

PREFACE TO PART II

1.	ACQUISITION CYCLE OVERVIEW	
1.1	Industrial Base Analysis Issues for the Different Phases of the Acquisition Process	1.1–1
1.2	The Program Manager's Baseline	1.2–1
2.	ACQUISITION MANAGEMENT	
2.1	Getting the Most Out of Government Industrial Base Specialists	2.1–1
2.2	Using the Armed Services Production Planning Officer (ASPPO)	2.2–1
2.3	Protecting the Defense Industrial Base	2.3–1
2.4	Understanding the Defense Production Act	2.4–1
	2.4.1 Using the Defense Production Act (DPA): Title III (Expansion of Productive Capacity and Supply)	2.4.1–1
2.5	Evaluating Foreign Dependency Issues	2.5–1
3.	ACQUISITION STRATEGY	
3.1	Developing an Acquisition Strategy	3.1–1
4.	BUDGETING AND FUNDING	
4.1	Developing Industrial Investment Strategies	4.1–1

TABLE OF CONTENTS (Continued)

		Page
5.	CAPITAL INVESTMENT	
	5.1 Contractor Versus Government-Furnished Equipment	5.1-1
6.	COMPETITION	
	6.1 Effective Use of Competition	6.1-1
7.	CONFIGURATION MANAGEMENT	
8.	CONTRACTING	
	8.1 Development of a Procurement Strategy	8.1-1
	8.2 Stabilizing the Subcontractor Structure	8.2-1
9.	DATA MANAGEMENT	
	9.1 Data Collection Methods	9.1-1
10.	ENGINEERING/TECHNICAL MANAGEMENT	
11.	FINANCIAL MANAGEMENT	
12.	INTEGRATED LOGISTICS SUPPORT	
	12.1 Industrial Base Considerations in the Integrated Logistics Support Plan (ILSP)	12.1-1
13.	INTERNATIONAL PROGRAMS	
	13.1 International Cooperative Efforts	13.1-1
14.	MANUFACTURING AND PRODUCTION	
	14.1 Supporting the Manufacturing Planning Process	14.1-1
15.	TEST AND EVALUATION	
APPENDIX A	ACRONYMS	A-1
APPENDIX B	INDEX	B-1

LIST OF FIGURES

Figure		Page
PART I		
2.2–1	The Traditional Program Manager's Perspective	2–2
2.2–2	A Modified Program Scenario	2–3
2.2–3	A Revised Program Manager's Perspective	2–3
2.2–4	A Parochial Perspective	2–4
2.2–5	An Interdependent Base	2–4
3.1–1	Program Production Analysis Matrix	3–2
3.1–2	Adding the Demand Dimension	3–2
3.1–3	Work Breakdown Structure Extract	3–3
3.1–4	Expanded WBS to Indicate Source	3–4
3.1–5	Lead Time Analysis Diagram	3–4
3.1–6	Production Acceleration Potential	3–5
3.4–1	Supply Breakdown Structure	3–8
4.6–1	Flow Diagram for the 1519 System	4–4
4.6–2	DD Form 1519 Planning Martrix	4–5
4.6–3	DID Flow Chart	4–6
4.6–4	DID Matrix	4–7
4.6–5	DIBP Method Flow Chart	4–8
4.6–6	DIBP Matrix	4–8

LIST OF FIGURES (Continued)

Figure		Page
4.6–7	Special Studies Flow Chart	4–9
4.6–8	Special Studies Matrix	4–9
PART II		
1.1–1	Industrial Aspects of the Acquisition Phases	1.1–2
3.1–1	Transitioning from Peacetime to Crisis Production	3.1–2
3.1–2	Evolutionary Mobilization Planning	3.1–3
4.1–1	Industrial Preparedness Investment Considerations	4.1–2
4.1–2	Investment Strategy Interfaces	4.1–3
8.1–1	Procurement Strategy Process	8.1–3
8.1–2	Production Rate Range	8.1–4
9.1–1	Physical Aspects of the Production Process	9.1–3
9.1–2	PBA Integration	9.1–4
9.1–3	The DoD PBA	9.1–5
14.1–1	Manufacturing Activities in the System Acquisition Process	14.1–2

LIST OF TABLES

Table No.		Page No.
PART I		
3.4-1	Levels of Products	3-7
5.2-1	INDCON Ladder	5-3
PART II		
1.2-1	Extract of OUSD(A) Mission Area Titles	1.2-3
1.2-2	DSMC Decomposition of Mission Area 113	1.2-4
1.2-3	Extract of Annex B: Program Goals and Thresholds	1.2-4
1.2-4	Alternative Industrial Base Program Goals and Thresholds	1.2-5
12.1-1	Industrial Base Issues in ILS	12.1-3

EXECUTIVE SUMMARY

One of the principal U.S. national security objectives is to maintain the security of our nation and our allies. The 1988 National Security Strategy of the United States specifically declares:

> The United States, in cooperation with its allies, must seek to deter any aggression that could threaten that security and, should deterrence fail, must be prepared to repel or defeat any military attack and end the conflict on terms favorable to the United States, its interests and its allies.

There are clearly two aspects to this objective: first to deter and second to be prepared to fight, if necessary. In recent years, much of DoD's attention has been directed toward maintaining the effectiveness of our deterrent. This DoD emphasis translates into program manager guidance that focuses on performance and budgetary issues. Force modernization and technological superiority are the principal focus of DoD's attention.

Because the Defense Acquisition System is focused on a national objective of deterrence, there is an inherent presumption that if weapon systems possessing sufficient technological capabilities to offset corresponding threat capabilities can be produced and deployed to the U.S. forces, that war will never happen. But, what about the issue of a failed deterrence? What if the United States has to fight?

Every DoD exercise and mobilization study conducted in the last ten years has documented the fact that the United States is not prepared to fight any war of consequence. Senior military officials have contended — and recent sustainability studies confirm — that U.S. forces could sustain only a few weeks of a major conflict in Europe. Lesser conflicts involving U.S. — or Allied — forces pose a less severe problem, but could still consume vast quantities of munitions, spare parts, and platforms. Indeed, U.S. force readiness and sustainability could be substantially eroded in the total absence of any armed conflict. In a period of rising tensions accompanying a world crisis, a mere increase in the tempo of operations and training could put a substantial "dent" in force readiness and sustainability, which are substantially below acceptable limits. Yet, planners continue to develop operations plans as if the parking lots, ammunition dumps, and parts bins are full. Unfortunately, this assumption places excessive reliance on the capability of the industrial base to quickly respond and fill the materiel deficits.

The inability of the current industrial base to respond to defense contingencies in a timely fashion is also well documented. Since the late 1970s, DoD has attempted to measure the capability of industry to rapidly accelerate the production of key defense items. In almost every instance, the answer is "It cannot respond in time to affect the military outcome."

In the last few years, it has been evident that the renewed policy emphasis on industrial preparedness that began in the 1970s is not significantly improving the vitality and responsiveness of the industrial base. Certainly, DoD has achieved small case-by-case improvements in industrial responsiveness, but these isolated successes are not nearly sufficient to overcome earlier investment cutbacks and cancellations. In fact, the gap between industrial capability and the industrial requirement is growing larger.

One reason for this predicament is that the traditional industrial preparedness program focuses on the development of mobilization production capability for weapons that have completed the acquisition process and have been deployed to the field. Industrial preparedness is not considered during initial facilitization and any residual production capacity is purely incidental. Consequently, many impediments to industrial surge or mobilization are "designed in" to the weapon or the production base before the industrial preparedness planner inherits the weapon. This means that the solutions are often difficult to install and too costly to justify their funding outside of an impending crisis.

The most effective way to achieve industrial responsiveness is to design the capacity into a system from its inception. Program managers are required by DoD regulation (DoDD 5000.1, DoDI 5000.2, DoDI 5000.38, DoDD 4245.6) to address industrial base capability to surge and mobilize and to describe any industrial base constraints at all system acquisition reviews and production readiness reviews. Additionally, there is increasing emphasis in each of the Services on the integration of industrial preparedness into the acquisition process.

The Defense Systems Management College (DSMC) has published explanatory program manager's (PM's) handbooks and guides on subjects such as warranties, competitive production sources, risk assessment techniques, managing multinational programs, and managing joint service programs. Similarly, this guide for integrating industrial preparedness into the acquisition process will improve PMs' familiarity with industrial responsiveness program concepts, techniques, and procedures and help them carry out their responsibilities regarding these issues. This guide will provide terms-of-reference to orient the PM to the industrial base planning problem, a common analysis methodology to support their statements to the Defense Acquisition Board, and a common data collection technique to ensure that information is collected using consistent formats and definitions.

The purposes of this guide are to:

(1) Create an awareness of the risk that may occur by ignoring the industrial base implications of weapon system acquisition

(2) Demonstrate that industrial base issues can be effectively evaluated by the program manager with minimum disruption to current operations and minimum drain of critical resources

(3) Describe the elements of an industrial base analysis process

(4) Provide guidance for the integration of the analysis process in the various stages of system acquisition and development.

The guide is presented in two parts:

Part I: Industrial Preparedness Concepts and Structure

This part is designed to provide the reader with essential background information about industrial preparedness. Chapter 1 discusses the importance of industrial preparedness to national security and

the elements of industrial preparedness production planning. Chapter 2 describes the institutional constraints that must be resolved by DoD before the PM can be expected to effectively integrate industrial preparedness. Chapter 3 presents a detailed description of the various aspects of industrial base structure and infrastructure. Chapter 4 describes the existing mechanism that is available to the PM to assist in performing the IP tasks. Chapter 5 describes a new framework for industrial mobilization planning and execution that may make the PM's integration task easier to accomplish.

Part II: Industrial Preparedness Issues and Actions

This part is designed to be a practical reference document for all participants in the acquisition process. It is partitioned into 15 subject areas that are of the most concern to the program manager. Each of the 15 chapters is further subdivided into sections that provide an industrial preparedness perspective to issues regularly addressed by acquisition and procurement personnel.

This part is modeled in content and format after the DSMC ***PM's Notebook*** in an effort to achieve a degree of synergism for the reader. Like the notebook, a looseleaf format is most appropriate since the concept of industrial preparedness integration is changing so rapidly. Many of the topics presented here are described using the words "should" and "could" rather than "is" and "does." This is necessary because several key industrial preparedness analysis methods are not yet fully developed. As these methods mature, this guide will require frequent update with new and revised issue papers.

The reader should note that this guide does not propose an ambitious new body of analyses and decision steps for the PM. Instead, most of the discussions describe ***how industrial base concerns should be incorporated*** in ongoing program analyses that are already performed in the course of weapons program development and acquisition. We believe this approach is more consistent with the intent to ***integrate*** industrial base considerations within the acquisition process and also minimizes the program office resource requirements to carry out this mission. In brief, this guide suggests ***how*** and ***when*** the PM should consider industrial base impacts while carrying out normal duties, rather than trying to assume a broad range of new duties.

PART I

CHAPTER ONE

INTRODUCTION

YOU ONLY GET WHAT YOU PLAN FOR
AND PLANNING IS
AN ESSENTIAL PART OF PROGRAM MANAGEMENT

1. INTRODUCTION

Since at least 1981, it has been a policy objective of the Department of Defense to integrate industrial base considerations in the acquisition process. This is important for two reasons:

- ***Authority***. The program manager has the best visibility into program status and controls resources that can be directly used to resolve industrial base problems

- ***Timing***. The program manager is in the best position to identify and implement measures to enhance industrial base capabilities (including surge/mobilization capabilities) early in the weapons acquisition cycle, when such efforts can be most effective.

By incorporating the industrial base perspective in the acquisition process, it is possible that many subsequent producibility, affordability, and surge/mobilization problems could be avoided entirely through the application of system design and production facilities tradeoffs. If these decisions are not made early-on in the acquisition cycle, then it may be possible to solve them later only through relatively more expensive design changes, retrofits, or manufacturing process/capacity investments.

Despite the consistent statements of policy intent, progress in implementing this policy objective has been limited. Industrial base issues are seldom given attention during the early stages of program design and are only infrequently raised as major issues at weapons program milestone reviews. For the most part, the industrial base program remains outside the acquisition process, is considered "unaffordable" and is treated as an afterthought in fundamental program decisions.

Program managers and other personnel involved in the acquisition process have expressed two consistent views of industrial base programs; these two views largely explain the limited progress that has been made in encouraging increased attention to this problem. The first view is a matter of ***priority***. These initiatives are frequently viewed as having only secondary importance in comparison to more fundamental design, cost, and schedule issues. The second view, closely related to the former, concerns ***resources***: program office personnel must achieve a large number of program objectives with limited resources. In the absence of clear guidance, program office personnel frequently assume that giving "enough attention" to industrial base issues is a fairly complex and expensive undertaking. Given the combination of these two views — that industrial base matters would involve relatively large expenditures of limited resources on a fairly low priority undertaking — it is perhaps not surprising that these matters assume a relatively low priority for program office attention.

The purpose of this guide is to address both of these problems. First, it suggests why it is important — both for the program itself and for the broader national security — to address these issues continuously in the weapons acquisition process. Second, this guide also attempts to define the tools available to the program manager and to demonstrate that an effective industrial base analysis program can be easily incorporated in the weapons development and acquisition management program.

1.1 THE CURRENT SITUATION

Every DoD exercise and mobilization study conducted in the last ten years has documented the fact that the United States is not prepared to fight any war of consequence. Senior military officials have contended — and recent sustainability studies support the view — that U.S. forces could sustain only a few weeks of a major conflict in Europe. Lesser conflicts involving U.S. — or Allied — forces pose a less severe problem, but could still consume vast quantities of munitions, spare parts, and platforms. Indeed, U.S. force readiness and sustainability could be substantially eroded in the total absence of any armed conflict. In a period of rising tensions accompanying a world crisis, a mere increase in the tempo of operations and training could put a substantial "dent" in force readiness and sustainability. Yet, though force readiness and sustainability are substantially below acceptable limits, planners continue to develop operations plans as if the parking lots, ammunition dumps, and parts bins are full. Unfortunately, this assumption places excessive reliance on the capability of the industrial base to quickly respond and fill the materiel deficits.

The inability of the current industrial base to respond to defense contingencies in a timely fashion is also well documented. Since the late 1970s, DoD has attempted to measure the capability of industry to rapidly accelerate the production of key defense items. In almost every instance, the answer is "It cannot respond in time to affect the military outcome."

This is not the result of any inherent inadequacy in the industrial base, but is instead a legacy of two longstanding national security policy assumptions. The first was the assumption that any future conventional conflict in Europe was likely to occur with little or no warning and that, if U.S. forces could not sustain the conflict, the U.S. might resort to early use of theater nuclear weapons. It logically followed from this assumption that the industrial base would not be able to react in enough time to affect the outcome of this "worst case" conflict unless major — and probably "unaffordable" — investments were made in stockpiles and enhanced industrial base capabilities.

These assumptions have been officially rejected in favor of a new policy stressing the need for military capabilities capable of supporting a wide range of possible national security emergencies. National and DoD policies now place increased emphasis on the maintenance of industrial capabilities to support this initiative. However, implementation of these policies remains incomplete.

Three recent developments have increased the importance of enhancing industrial base capabilities. First is the reduced importance of nuclear forces resulting from ***nuclear parity and the recent arms control negotiations***. This trend increases the importance of conventional deterrent capabilities worldwide, but particularly in Europe. The ***more constrained budget environment*** that DoD is likely to face in the coming years magnifies the challenge. Because limited budgets will make it more difficult to purchase adequate force structure, readiness, and sustainability in the near-term, military planners will have to rely on production capabilities to meet an ever-increasing portion of their mobilization needs. The final development is the ***effort to institutionalize a Graduated Mobilization Response (GMR)*** capability. This initiative, endorsed by the Secretary of Defense and the National Security Advisor, provides a policy structure to enhance the ability of the industrial base to respond promptly and flexibly in the early stages of a crisis. It gives considerably increased credibility to planning assumptions that rely on production capabilities to meet national security needs. These new challenges and opportunities greatly increase the importance of implementing DoD policies requiring increased program office attention to industrial base issues.

1.2 EFFECTIVE PRODUCTION PLANNING

David Novick, a key member of the World War II War Production Board and a consultant to the administrator of the National Production Authority during the Korean conflict, perhaps said it best when he coined his "first law of mobilization" which states, "You only get what you have planned and prepared to get and your strategy is limited by what you have."

No one can predict with certainty when the next war will occur, but there is almost a 100% probability that if one does occur, the U.S. will not have the materiel that it needs to employ, sustain, and, if necessary, to expand the force. This fact imposes on the defense community at least an implied obligation to incorporate into its acquisition programs an ability to rapidly produce the materiel critical to an emerging crisis or armed conflict.

In the course of developing budgets and preparedness plans, DoD makes a very important assumption that has led to the compartmentalization of system acquisition and industrial preparedness. That assumption is that the force shortfalls, including war reserve stocks, will be procured by the last year of the POM and that the industrial base will be expected only to produce enough to offset post D-day consumption and attrition. Of course, past experience clearly demonstrates that the premise is without foundation. Near-term budgets have only been sufficient to cover the most immediate bills for force modernization and the needs of readiness and sustainment are, of necessity, continually pushed into the outyears. Since it is unlikely that this situation can be soon corrected, DoD must find other ways to ensure that sufficient industrial capabilities will be available to meet military needs. The essential components of an effective production plan include:

- A clear statement of the anticipated system requirements
- The description of existing production capability
- The identification of current and potential production impediments
- A program to eliminate the impediments.

1.2.1 Developing System Requirements

Effective production planning demands that system requirements be developed at the earliest opportunity in a weapon system's life cycle. These requirements must be expressed in terms of quantity and time in order to permit efficient initial facilitization and rapid expansion to reach the desired crisis production rates.

Peacetime requirements include the quantities needed to bring the current force to authorized equipment fill levels and to offset training and usage losses. When expressed in terms of a programmed buy, the peacetime requirement establishes a baseline for initial sizing of the production facilities and the development of a procurement strategy.

Surge requirements dictate the production capacity needed to meet most anticipated crises short of war. While these requirements are much more amorphous than those for peacetime, they can be used to establish a production target as a percentage increase in production over peacetime rates. Thus the statement, "Prepare to be able to double production in twelve months" can be used to establish a production target as a percentage increase in production over peacetime rates.

Mobilization requirements development must include consideration of six sequential aspects: mobilization, deployment, employment, sustainment, expansion, and reconstitution. A decision to initiate a military mobilization imposes a requirement to fill the mobilizing force to wartime equipment levels and to support an expanded training base. Unit fill should be achieved before the deployment phase begins. Since the time to complete the initial mobilization actions is short, the requirements of the deployed and early deploying units will, most likely, be filled through redistribution from late deploying or nondeploying units. Any redistribution plan must acknowledge that paybacks will eventually be necessary and the production plan must reflect those quantities and their delivery lead times.

As the force begins to deploy to the theaters of operation, logistics pipelines have to be established to ensure a steady flow of essential equipment and supplies. Planning for the quantities needed to charge the pipeline and to offset in-transit losses must incorporate an early acceleration of production.

During the employment phase, a planner must consider the distribution of available assets and the effectiveness of the force at different equipment densities. If equipment shortages are likely, reasonable substitutes must be identified and fielding requirements determined. This planning may impose a larger production rate on an item than is otherwise anticipated.

Sustaining requirements are logical extensions of employment decisions which dictate the type and pace of military engagements. Attrition of weapons and ammunition as well as increased consumption of secondary items, spares, and repair parts will place major demands on the production base.

Many warfighting scenarios require a significant expansion of the current force structure to match the projected threat. Most of the current production plans fail to account for expansion, especially expansion that must be accomplished in concert with sustainment.

The final aspect of mobilization is reconstitution. Reconstitution includes the interim reestablishment of an attritted force to permit fighting to continue as well as the eventual rebuilding of the final demobilized force.

1.2.2 Quantifying Production Capability

Industrial base capabilities are a key determinant of whether or not current and future weapons systems can be produced in a timely manner and at an affordable cost. These capabilities generally receive little or no attention during the early acquisition stages of a weapons program. As a result, opportunies to design production capability improvements or production cost reductions into the system can be lost.

In order to determine production capability, DoD must first understand product manufacturing structures. The manufacturing structure or architecture relates a system to its various subsystems, components, parts, and materials. Early in system development, the architecture can be used to relate technologies and manufacturing processes to ensure that a system concept is, in fact, producible. Later, each element of the architecture can be linked to the producer, or set of producers, to ensure that the most viable production infrastructure is developed.

A knowledge of the production infrastructure can provide insights into the capabilities of industries and industries can be further aggregated to provide an understanding of the national economy. Once this framework of knowledge is established, DoD can proceed with an assessment of industry's capacity to meet the peacetime, surge, and mobilization production requirements.

1.2.3 Identifying and Resolving Production Impediments

In 1985, OSD conducted a mobilization study called the Industrial Responsiveness Analysis (IRA) for which they established a uniform format for describing production constraints. This format, when coupled with a prioritization scheme, can be used to develop consistent and usable recommendations to mitigate critical production impediments. The IRA format describes four categories of constraints.

Legal constraints are Federal, State, or local laws and/or regulations which limit production capability and require relief or which contain insufficient authority to support production expansion.

Procedural constraints consist of government rules, regulations, and practices not mandated by

law but that are discretionary. Examples of procedural constraints are: reports, acceptance testing, contracting requirements, and product specifications.

Financial constraints are caused by cash availability, credit limitations, and cost of money. These constraints limit the amount of capital investment that a manufacturer is willing to make and can substantially impact facility modernization and expansion.

Physical constraints are caused by insufficient plant, tooling, labor, or material at the prime or subtier levels. These constraints are ultimately the yardstick of industrial mobilization potential and are the most costly to rectify. Every weapons program should have an investment strategy which provides a plan for eliminating physical constraints.

1.2.4 Developing Investment Strategies

A sound industrial base investment strategy must be defensible. It must clearly account for the coexistence of peacetime, surge, and mobilization objectives. In some instances, the objectives may contradict one another while in others, they may be symbiotic. Whichever the case, benefits of investment options must be carefully identified, since without adequate justification, the most vital investment will probably not survive the resource competition.

An effective investment strategy must be honest. It must not bury the costs of acquiring surge and mobilization capacity within the cost of producing the peacetime buy. It must clearly differentiate between that minimum capital investment required to achieve the lowest possible unit costs and the additional augmenting investment that results in idle capacity during normal operations but that is essential to attaining surge production rates. While some may argue that discretely partitioning peacetime and crisis capitalization will ensure that surge and mobilization capacity will never be funded, they must certainly recognize that hidden funds can easily become excess funds and excess funds can be easily diverted without reclama. By honestly reporting the cost of crisis facilitization, decisionmakers must openly and explicitly choose to either accept or reject the funding options.

An implementable investment strategy must be flexible. The key word for dealing with the budget process is "negotiate." Many funding requests are eliminated simply because they are too large to fit into the current budget package. Yet, if that same request had been divided into incremental packages, the chances are greatly increased that over the span of four or five years the project could be completed.

1.3 THE INTEGRATION OF INDUSTRIAL PREPAREDNESS INTO THE ACQUISITION PROCESS

1.3.1 Deficiencies With the Traditional IP Program

Since the early 1980's, it has been evident that the industrial preparedness renaissance that began in the mid 1970's was not significantly improving the vitality and responsiveness of the industrial base. Certainly, DoD was achieving small case-by-case improvements in industrial responsiveness, but these isolated successes were not nearly sufficient to overcome earlier investment cutbacks and cancellations. In fact, the gap between industrial capability and the industrial requirement was growing larger.

One reason for this predicament is that the traditional IP program focuses on the development of mobilization production capability for weapons that have completed the acquisition process and have been deployed to the field. Industrial preparedness is not considered during initial facilitization and any residual production capacity is purely incidental. Consequently, many impediments to industrial surge or mobilization are "designed in" to the weapon or the production base before the IP planner inherits the weapon. This means that the remedial solutions are often difficult to install and too costly to justify their funding outside of an impending crisis.

1.3.2 A New IP Strategy

Breaking with tradition has always been difficult to accomplish and the industrial issue is no exception. However, having recognized that more of the same is not good enough, DoD policy has slowly begun to reflect a requirement to integrate industrial preparedness into the early life cycle planning of the acquisition process. Such regulations as DoDD 5000.1, DoDI 5000.2, DoDI 5000.38, and DoDD 4245.6 now stipulate that the impact of acquisition on the industrial base must be considered and that system acquisition and production readiness reviews will address the industrial base capability to surge and mobilize.

Additionally, there is increasing emphasis in each of the Services on the integration of IP into the acquisition process. The most notable initiative came from the Army Materiel Command in January 1986. General Richard Thompson, the AMC commander, issued a letter to each of his subordinate commanders informing them that the program managers were to be held responsible for the industrial preparedness planning of their systems. This initiative and others like it have placed a new burden on the program manager. The extent of this burden and the possible solutions to ease it are the subject of the following chapter.

PART I

CHAPTER TWO

THE PROGRAM MANAGER'S DILEMMA

THE PM IS RESPONSIBLE FOR CONDUCTING INDUSTRIAL PREPAREDNESS, BUT IS OFTEN UNABLE TO FULFILL THAT RESPONSIBILITY

2. THE PM's DILEMMA

Department of Defense Directive 5000.1, which establishes the overall framework for DoD acquisition policy, states that:

- The policy of the Department of Defense is to assure that the DoD Acquisition System functions in a timely, efficient and effective manner to achieve the operational objectives of the U.S. Armed Forces in support of national policies and objectives
- To enhance program stability, DoD Components will plan for economical rates of production, surge and mobilization requirements, and, where appropriate, multi-year procurement
- A strong U.S. industrial base is essential for a strong defense. Accordingly, the near-term and long-term implications and ramifications of proposed acquisition programs on the U.S. defense base shall be explicitly considered during the decisionmaking process
- Program managers shall manage their programs in a manner that is consistent with, and supportive of, the policies and practices contained in this Directive.

Despite these clear statements of policy intent, it is virtually impossible to find any acquisition program document that addresses the operational requirement and assesses the industrial capability needed and available to support it. The reason for this apparent lack of responsiveness stems from a need for:

- Greater command emphasis
- Holistic program management
- Effective analysis tools and techniques
- Efficient data collection procedures.

These needs, if left unfulfilled, constitute the PM's dilemma.

2.1 THE NEED FOR GREATER COMMAND EMPHASIS

The program manager does not control the fate of his program. From the time of his appointment, when handed the initial program baseline, he must operate within the resource and priority boundaries established by the Service, OSD and Congress. His first-order priority is to field a weapon within the established cost, schedule, and performance parameters. The second-order priorities require the PM to carry out his mission continually observing such issues as: competition, warranties, value engineering, total quality management, and international cooperation. These second-order priorities are all assigned equal importance and each has a constituency whose job it is to ensure that the PM is sufficiently attentive to the respective issue area.

If the program manager is to be responsive to the policies that mandate industrial preparedness, he must receive emphatic support from the leadership. The leadership must be consistent in demanding that disparities between industrial preparedness policies and other acquisition policies are resolved and that the industrial preparedness policies are carried out. The leadership must make producibility a first-order priority and consciously evaluate the management of industrial base issues during Congressional reviews, meetings of the Defense Acquisition Board, and all Service program reviews.

Simply stated, the Acquisition Executives need to ensure that industrial base issues are considered equally with other program manager requirements at each stage of the acquisition cycle and the PM must be given the time, the manpower, and the funding to perform the task.

2.2 THE NEED FOR HOLISTIC PROGRAM MANAGEMENT

The Defense Acquisition System is focused on a national objective of deterrence. There is an inherent presumption that if weapon systems possessing sufficient technological capabilities to offset corresponding threat capabilities can be produced and deployed to the U.S. forces, that war will never happen. Thus, a weapon system requirement is expressed in terms of performance objectives, and lowest unit cost becomes the predominant decision criterion. Because the program manager works within a structure devoted to managing life cycles, it is easy to acquire a mindset of uniformity. That is, that weapons program management is a continuous stream of development, production, deployment, retirement, development, etc. And yet, program managers, as well as all others involved in weapon acquisition, should be reminded that the first U.S. national security objective (the January 1988 National Security Strategy of the United States) goes

beyond deterrence to state that should deterrence fail, the United States must be prepared to repel or defeat any military attack. In order to accomplish this objective, weapons program management must broaden its perspective in three ways.

The first change in perspective is one of goal setting. Figure 2.2–1 shows the traditional program manager's viewpoint. In the short term, the program manager is focused on successfully accomplishing the next milestone review. Depending on the phase of the acquisition process, the PM may be actively pursuing full rate production and system deployment. However, if filling and maintaining a peacetime force structure is the ultimate program goal, crucial decisions may inadvertently restrict the ability of the industrial base to attain and sustain the greater mobilization production requirements.

The second change of perspective is one of flexible response. As illustrated by Figure 2.2–2, there is no guarantee that mobilization will be delayed until the system is fully fielded. A national security crisis can occur without warning. Many likely scenarios would require significant modifications in weapons acquisition and procurement and program managers should always be prepared to answer the question, "What might I do with my program if mobilization occurs before I reach the next milestone?"

In order for a program manager to adopt either of these changes, he must acquire a new perspective (Figure 2.2–3) that simultaneously acknowledges the deterrent and the warfighting aspects of weapons system acquisition.

The third change of perspective is one of relative significance. As depicted in Figure 2.2–4, the program manager typically views the industrial base from the perspective of his own program. His role as weapon system advocate requires him to support those policies, programs, and actions that promote his acquisition objectives and to resist anything that could be detrimental to his program. However, the PM should be aware that his system is only one of many systems that are being developed to satisfy the general mission of national security. As suggested by Figure 2.2–5, different weapon programs frequently share a common base of suppliers, who may not be able to support all potential requirements simultaneously. The more visibility that the PM has into his subcontractor/vendor base, the more he will find that his materials, parts, and components are being provided by suppliers that are supporting multiple weapons programs. Thus, not only does a program manager need to consider the long term industrial base implications of his decisions on his own program but also of the possible impact that his decisions can have on other essential programs.

2.3 THE NEED FOR EFFECTIVE ANALYSIS TOOLS AND TECHNIQUES

Once the need to incorporate industrial base issues into acquisition decisions is recognized and

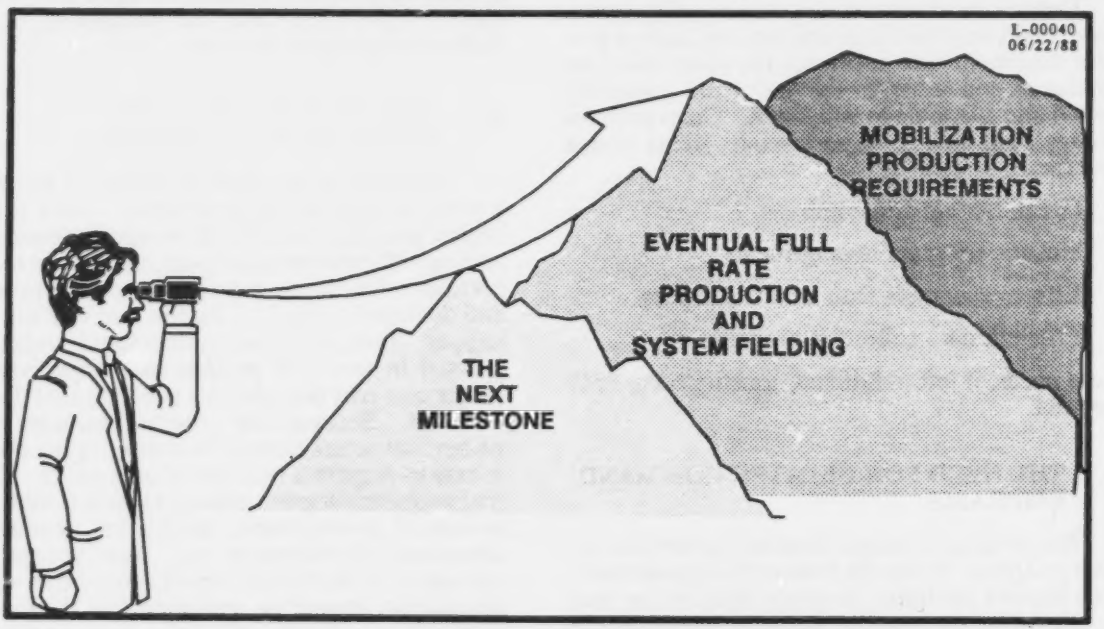


Figure 2.2–1 The Traditional Program Manager's Perspective

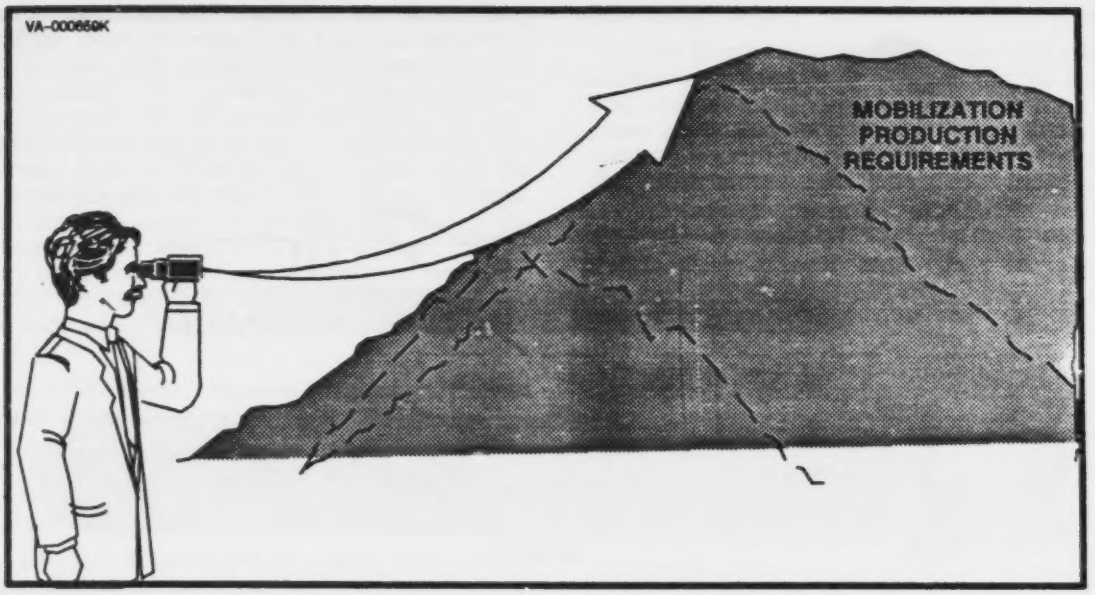


Figure 2.2-2 A Modified Program Scenario

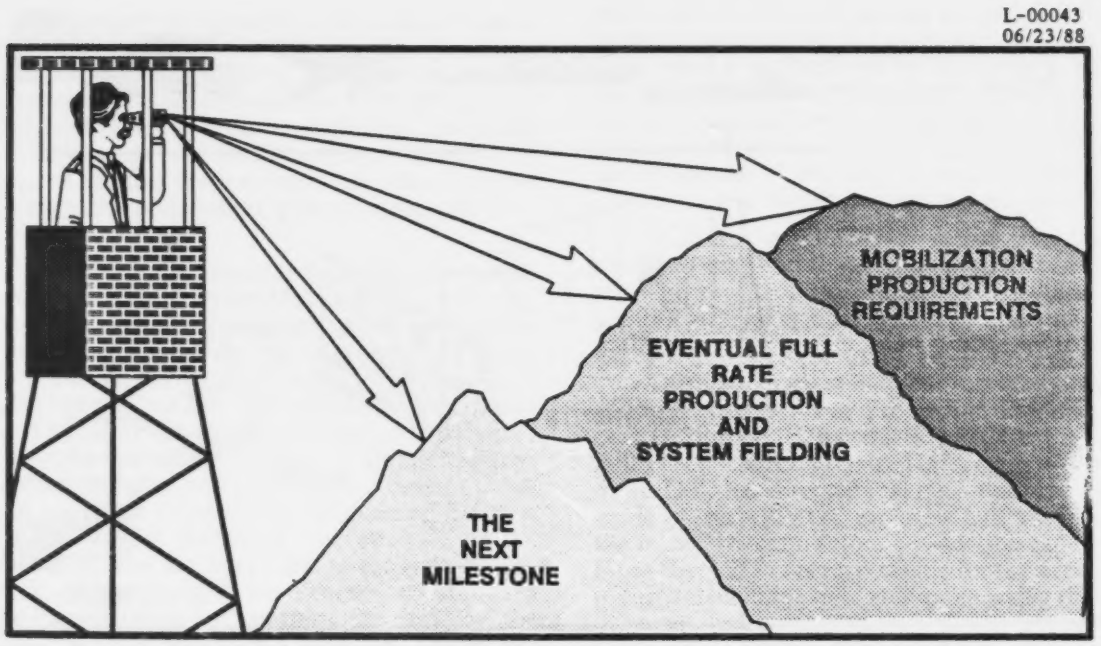


Figure 2.2-3 A Revised Program Manager's Perspective

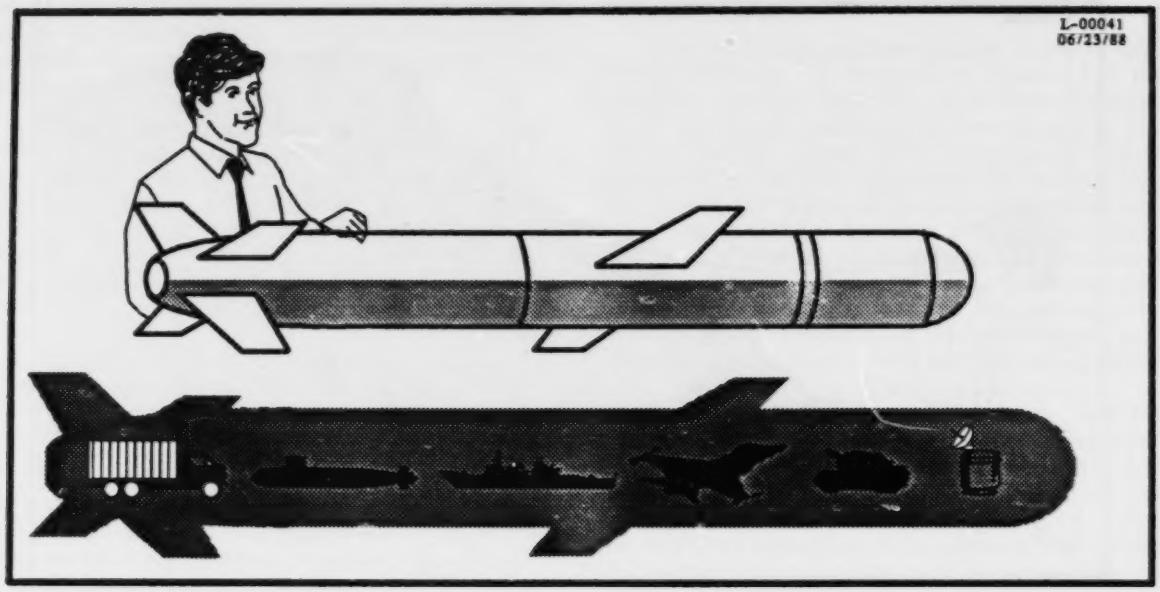


Figure 2.2-4 A Parochial Perspective

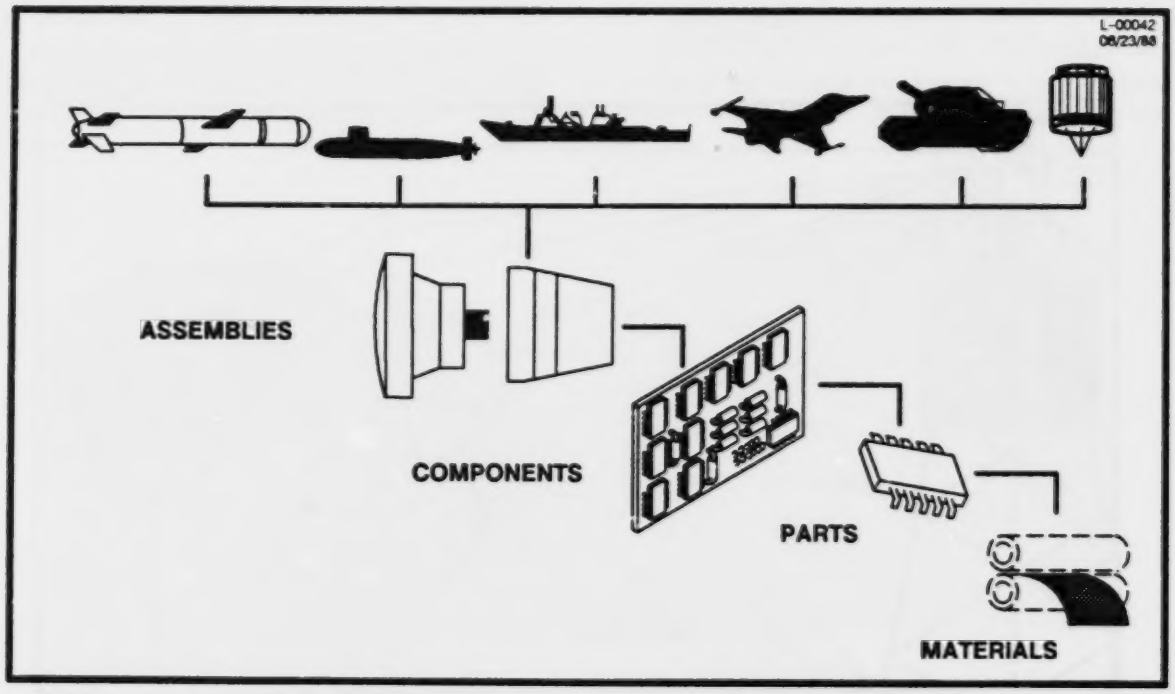


Figure 2.2-5 An Interdependent Base

accepted, the program manager must turn his attention to mechanisms. The question he will be asking is, "How does one effectively integrate industrial base analysis with the issues of cost, schedule, and performance?" During the last 20 years, techniques for objectively evaluating cost, schedule, and performance have been documented and refined. The Defense Systems Management College and the other Service schools that teach program management devote a significant portion of their curriculum to teaching program office personnel ways to apply these techniques and conduct the necessary tradeoff analyses. Methods of performing industrial base analysis have not been similarly developed.

For a number of reasons, many of which have already been addressed, industrial base analysis has not been included in the mainstream of program management. This guide is intended to address the four major impediments to changing this condition.

The first impediment is a lack of awareness within the program management community of the basic vocabulary, the key issues, and the programs which exist to improve their understanding and permit their participation in industrial preparedness. Without a clear understanding of the scope and objectives of industrial preparedness it is impossible for program managers to adequately consider the industrial alternatives.

The second impediment is the abstract nature of industrial base analysis. Since a primary emphasis of the analysis is on surge and mobilization, the analyst must project a production environment that is different than peacetime conditions. The crisis environment can be difficult to grasp and requires a change of mindset from many of the rules that govern peacetime acquisition, procurement, and production.

The third impediment is the subjective nature of industrial base analysis. Most of the analytic procedures for evaluating program cost, schedule, and performance, including the risk analysis techniques, can be expressed in a matrix format which can be reduced to objective mathematical parameters. The capability to quantify cost, schedule, and performance parameters has led to standard analysis techniques that permit computer-based modeling of seemingly complex but interrelated decision criteria. Current industrial base analysis, on the other hand, does not lend itself as easily to mathematical solutions, and the absence of standard terms-of-reference and assumptions prohibit the establishment of an analysis baseline. Unless the "industrial preparedness risk" can be parameterized, program managers should not be expected to give it equal treatment with the other risk factors.

The fourth impediment has been the effective compartmentalization of weapon system acquisition and industrial preparedness planning. Because surge and mobilization have seldom been considered until after a system enters production, the industrial specialists that make up the industrial preparedness community have not learned how to perform industrial analysis for the early acquisition phases. These industrial specialists can be a valuable resource to assist program managers in fulfilling their assigned responsibilities.

2.4 THE NEED FOR EFFICIENT DATA COLLECTION PROCEDURES

A number of DoD studies have documented that sufficient data are not readily available to program managers to evaluate the industrial base issues for weapon system production. This is due primarily to the absence of visibility into the lower production tiers.

Most program offices have neither the personnel nor the monetary resources to perform this task alone. This section addresses three considerations that may lead to a responsible solution to the resource problem.

First, the data requirements must be defined in such a way that they are easy to satisfy. To accomplish this, the Government must work jointly with industry to determine the minimum essential set of data needed to satisfy the management requirements. These data should be extractable from data that the manufacturers use as a part of their daily business operations. This will ensure the reliability and timeliness of the data as well as reducing the burden on the contractor and the resultant cost.

Second, the number of subcontractors, vendors, and suppliers that are required to furnish data must be kept to a minimum. This requires early identification of critical system components, eliminating those components which pose no problem.

Third, program managers must take advantage of the Armed Services Production Planning Officers (ASPPOs). Procedures exist for the use of ASPPOs to collect industrial information. Furthermore, DoD has directed that maximum use must be made of the ASPPOs' expertise and knowledge of the respective contractors' production capabilities. Since the ASPPO is responsible for the accuracy of industrial planning data and for ensuring that DoD does not overcommit a manufacturer's capacity, using any different data collection source would create chaos and inefficiency. (For more information refer to Section 2.2, "Using the ASPPO.")

PART I

CHAPTER THREE

THE ANATOMY OF THE INDUSTRIAL BASE

THE PM MUST UNDERSTAND THE STRUCTURE AND INFRASTRUCTURE OF THE INDUSTRIAL BASE SO THAT INFORMED DECISIONMAKING CAN BECOME POSSIBLE

3. THE ANATOMY OF THE INDUSTRIAL BASE

It is virtually impossible to analyze, manage, or make decisions about the industrial base without having a clear understanding of its character and structure. To many, the industrial base is viewed as a black box where dollars are fed in at the top and products emerge from the bottom. The transforming mechanism does not need to be understood — as long as it works. Occasionally, it may not work quite right. The product cost may rise too high, the schedule may slip too much, or there may be some decline in quality. When these perturbations occur, adjustments are made by changing Government rules and regulations or by imposing additional standards and specifications.

The program manager usually has a little more understanding of the nature of his supporting contractor base. As the situation warrants, he may have regular discussions with one or more prime contractors regarding their manufacturing capabilities and constraints. He may even have some knowledge about the primes' subcontractors. However, from this point, the remainder of the production structure rapidly assumes the form of that black box previously described. Of course, there are occasions when the PM catches a glimpse of the vendor subtiers, but this is usually the exception. As one prime contractor expressed, "I know who I buy from, but I don't know who they buy from and I don't have the time or resources to find out."

Program managers cannot simply be black box operators nor can they rely solely on their prime contractors for information. If PMs are to comply with the requirement of DoDD 5000.1 to "explicitly consider the near-term and long-term implications and ramifications of proposed acquisition programs on the defense base," they must become black box mechanics. They must understand both the structure and infrastructure of the industrial base. This understanding begins with their particular program and the relationship of all the subcontractors, vendors, and suppliers that support it. Next, the manager must understand the relationship of his program to the other programs in his mission area. The industrial impact of the mission area is then measured against the total defense production requirement. When the implications of defense needs are considered along with the civil manufacturing requirement, the PM begins to shift his perspective from the micro to the macro — from individual systems to industries. He must begin to think in terms of national industrial economics. The final level of understanding is the international industrial relationship. In dealing with this aspect, the PM must have some knowledge of the current industrial capabilities of foreign manufacturers as well as the potential for future foreign dependencies.

Obviously, the PM cannot be expected to develop all of this information solely through the resources of his program office. Nor is this necessary. A substantial amount of information about industry is available to the PM, if it is formatted appropriately and made accessible to him.

Generally, the PM will have the principal responsibility for program-specific information. Nobody has a better view of the program's supporting infrastructure than the PM. More general information on cross-program, industry-wide, and international issues is obtained by integrating PM inputs and through other sources such as Service Production Base Analyses. The PM needs to be systematically aware of this information.

3.1 THE MANUFACTURING PROCESS

As described in Section 1.2.3, the two primary manufacturing yardsticks for industrial preparedness (capacity and lead time) are governed by legal, procedural, financial, and physical considerations. These four constraint categories affect each of three manufacturing process functions: procurement, fabrication, and integration. The procurement function is the purchasing of parts and materials from the lower production tiers and includes ordering, waiting, shipping, and receiving. The fabrication function includes assembly and painting (if required). The integration function includes all testing, packaging, and shipping. These factors, when placed in a matrix format (Figure 3.1-1), provide a simple mechanism for evaluating a facility's program production capability (actual and potential).

The matrix can be used to address either the supply-side issues or the more typical demand driven issues. The term "supply-side" describes a total facility capability rather than an ability to meet a predetermined production demand. Thus a manager could ask the question, "What could be done to maximize the production output of your facility?" Some of the actions, especially those in the legal and procedural areas, may be accomplished at low dollar cost but with a high political cost, i.e., may not be

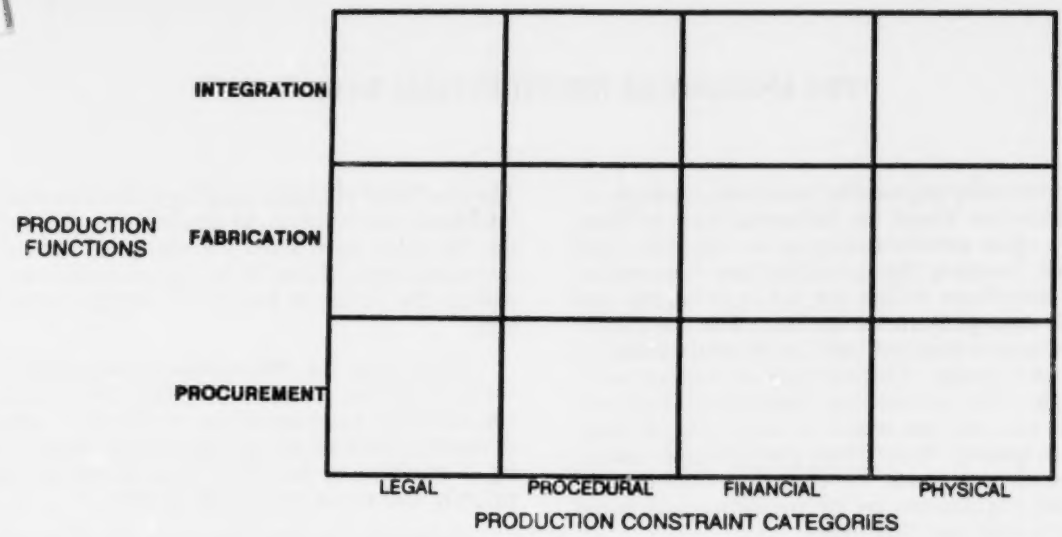


Figure 3.1-1 Program Production Analysis Matrix

politically feasible. Most of the resource expenditure would be needed to remedy the physical constraints.

A demand-driven analysis imposes a production target on the capability assessment. Where the supply-side assessment simply asks how much and how long, the demand-side deals with the issue of sufficiency. That is, "Is what I can do enough?" and "If it is not enough, how can I get more?" or "Can I get what I need in time?" and "If I can't, how can I shorten the time?"

A demand-driven analysis adds a third dimension to the matrix as shown in Figure 3.1-2. Demand is stated in terms of peacetime, surge, or mobilization production targets — targets that convey the parameters of quantity and time.

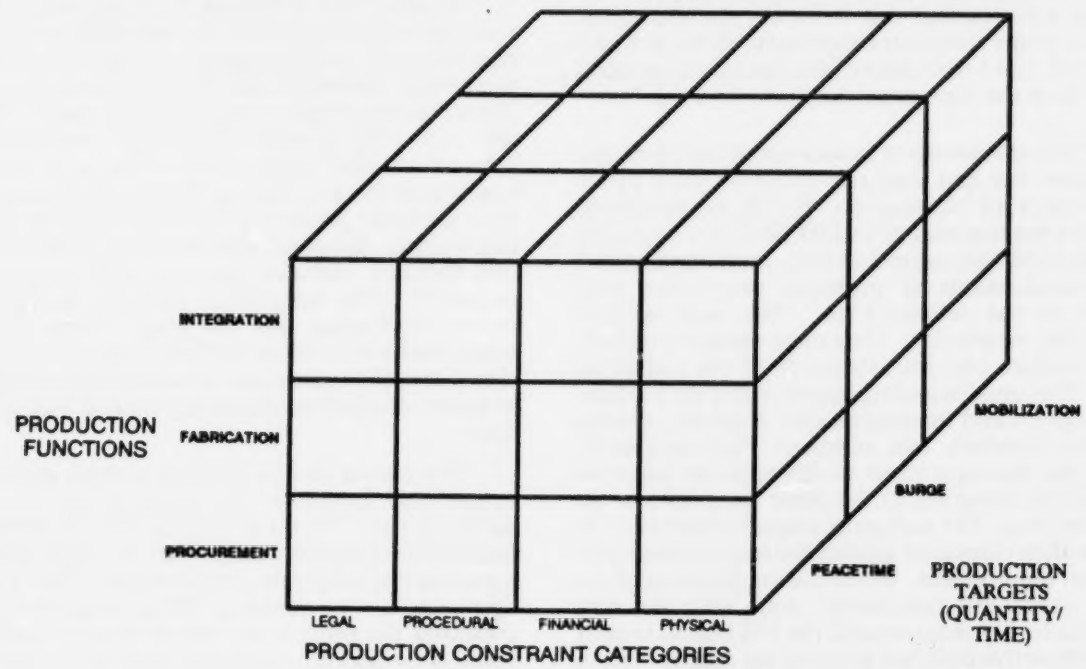


Figure 3.1-2 Adding the Demand Dimension

Using this approach the manager can acquire a functional knowledge base for the prime contractor's facility. However, unless this same approach is applied for the prime's subcontractors and vendors, the manager can never be assured that the procurement assumptions that are made by the prime are, in fact, valid. In order to pursue the analysis to all necessary subcontractors and vendors, the manager must begin with a basic understanding of the production tier structure.

The foundation of the production tier structure is the work breakdown structure (WBS) (Figure 3.1-3), which is first developed during concept exploration and is refined during the demonstration/validation phase. The WBS provides what might be called the "Goes into" relationship of the various system assemblies, components, parts, and materials. From this structure the manager can acquire a number of important insights.

For example, during concept design, the manager can identify those components that require exotic materials or high risk technologies. Later in the acquisition cycle, as the prime contractor begins to establish the vendor base and develop the make-buy plan, manufacturers can be added to the WBS to show the system's production infrastructure. As depicted in Figure 3.1-4, the manager may find that multiple producers are producing the same item or, conversely, that a single producer is supplying several system components. These insights will be helpful to the industrial preparedness offices as they identity potential production chokepoints that would need periodic monitoring.

Having established the component/manufacturer linkage, the manager can selectively apply the facility analysis technique described earlier to those suppliers that could potentially restrict system production. The results of these analyses can also be applied to the WBS format for ready reference. Figure 3.1-5 shows one possible way to display lead-time data. In this figure the assembly lead time is the time prior to delivery that the next higher level needs the component to be able to complete its manufacturing actions. Item manufacturing lead time is the actual time to produce (fabricate and integrate) the item. Cumulative order to delivery lead time is the sum of all higher assembly lead times, the manufacturing lead time, and the procurement lead time.

In the example diagram, the APC could be delivered 6 months from the date of order if all parts and components were on-hand. However, if new orde . for the drive train were required. The lead-time is extended to 11 months (assuming that all the drive train components are on-hand). By walking down the diagram, it is easy to see that, if no APC components were in the supply pipeline, the lead-tinme for the APC would be 22 months.

The same methodology can also be used by the manager to compare the acceleration potential of the prime to that of the lower tier suppliers to

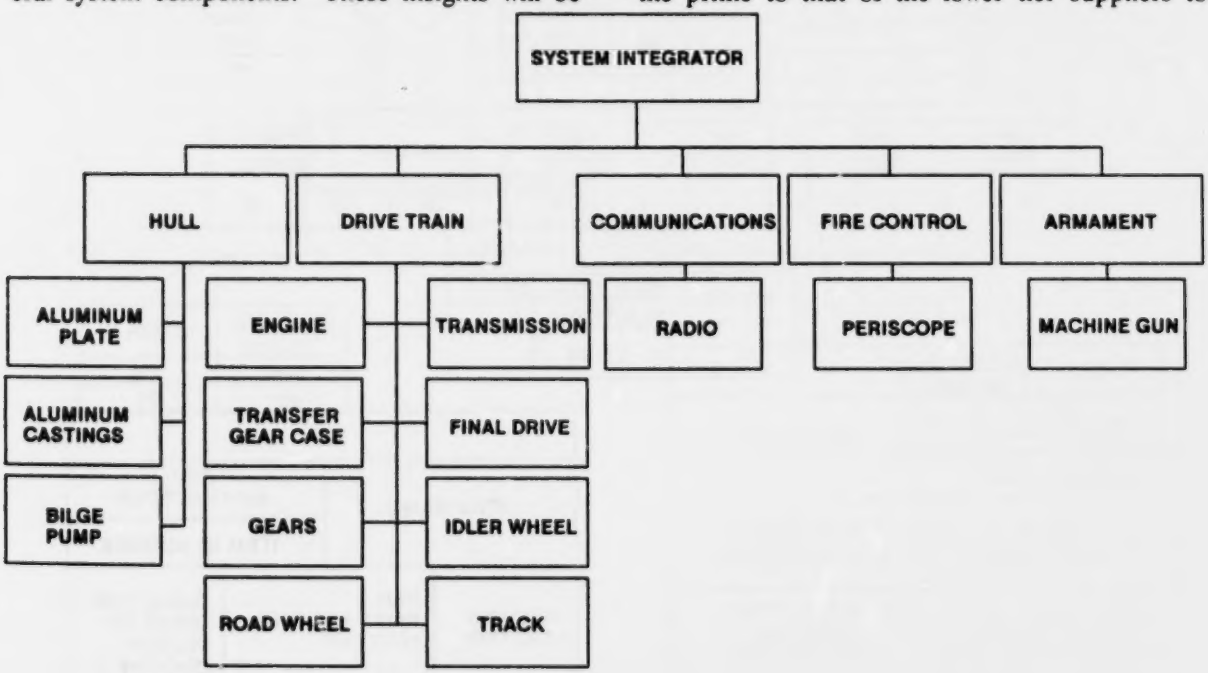


Figure 3.1-3 Work Breakdown Structure Extract

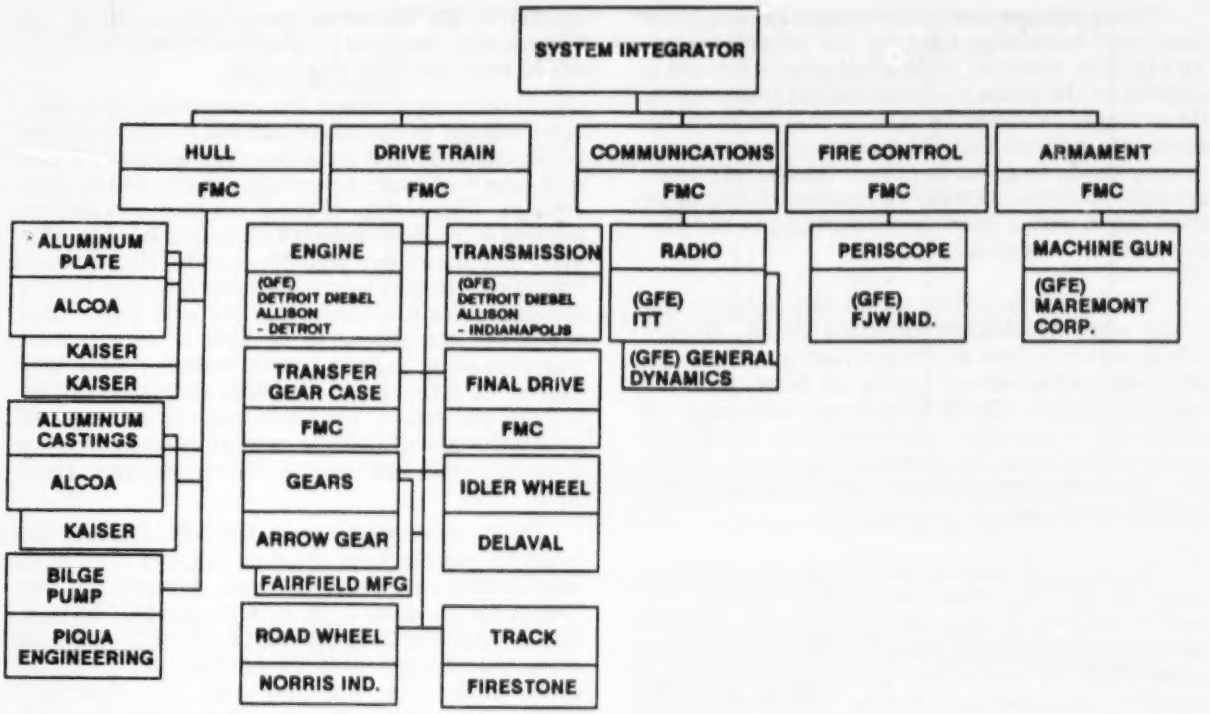


Figure 3.1-4 Expanded WBS to Indicate Source

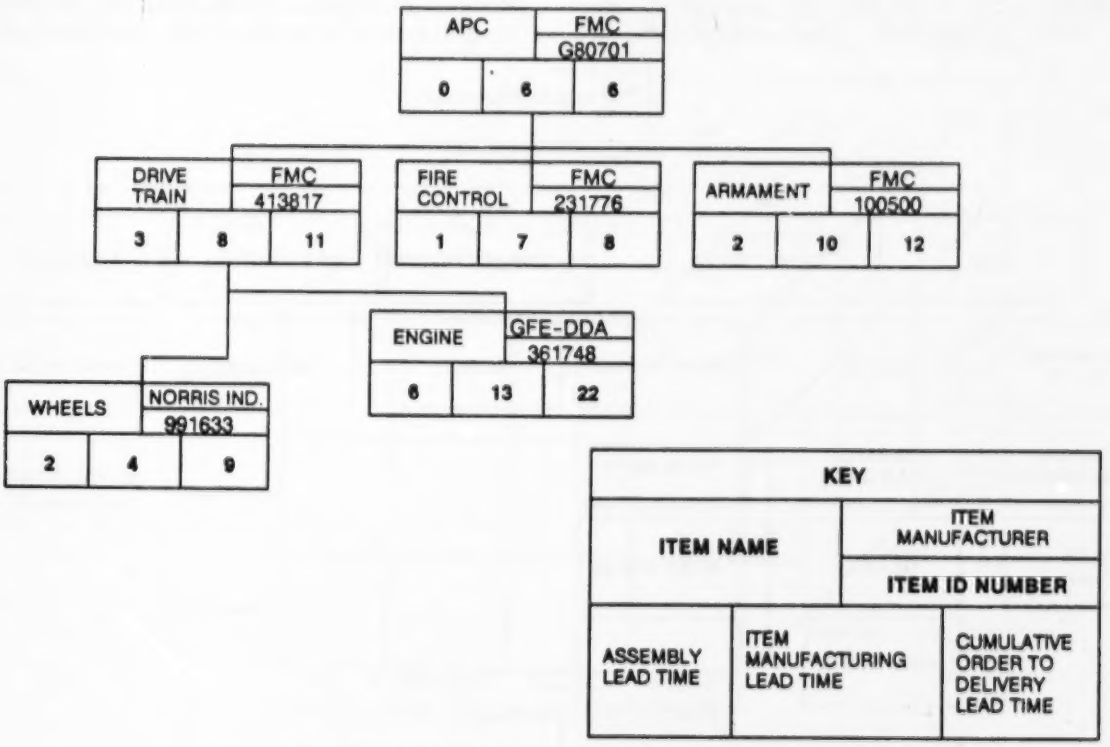


Figure 3.1-5 Lead Time Analysis Diagram

determine each of the production choke points. Figure 3.1-6 illustrates a hypothetical surge case where the surge of armored personnel carriers is constrained by engine production. The APC engine in the example, has no surge capability and can only produce 50 APC equivalents. Based upon this knowledge, the first investment increment to improve APC surge capacity should be made at the engine facility to increase engine production from 50 per month to 60 per month.

With some minor modifications, the manager is now able to consider issues of sole/single/foreign sourcing, production cross leveling, restricted/unrestricted competition, make-buy plans, logistics component breakout, as well as the entire spectrum of industrial preparedness planning for those critical components or key subcontractors that he has selected for examination.

3.2 MISSION AREA RELATIONSHIPS

Most weapons programs fit into a mission area that contains a number of similar programs. Because of their similarity, the type and perhaps even the identity of the lower tier suppliers may be the same. This can result in manufacturers or suppliers who have the capability to support the production requirements of one or two systems, but who cannot support all requirements simultaneously. While the manager cannot be greatly concerned with the producibility of other weapon systems, he must be aware of the other production requirements that could potentially restrict the accomplishment of his goals. His question then is: "Can you meet my production rates and meet everyone else's too?"

Of course, the preceding paragraph is based on a premise that all systems in a mission area have a surge or mobilization requirement that will require

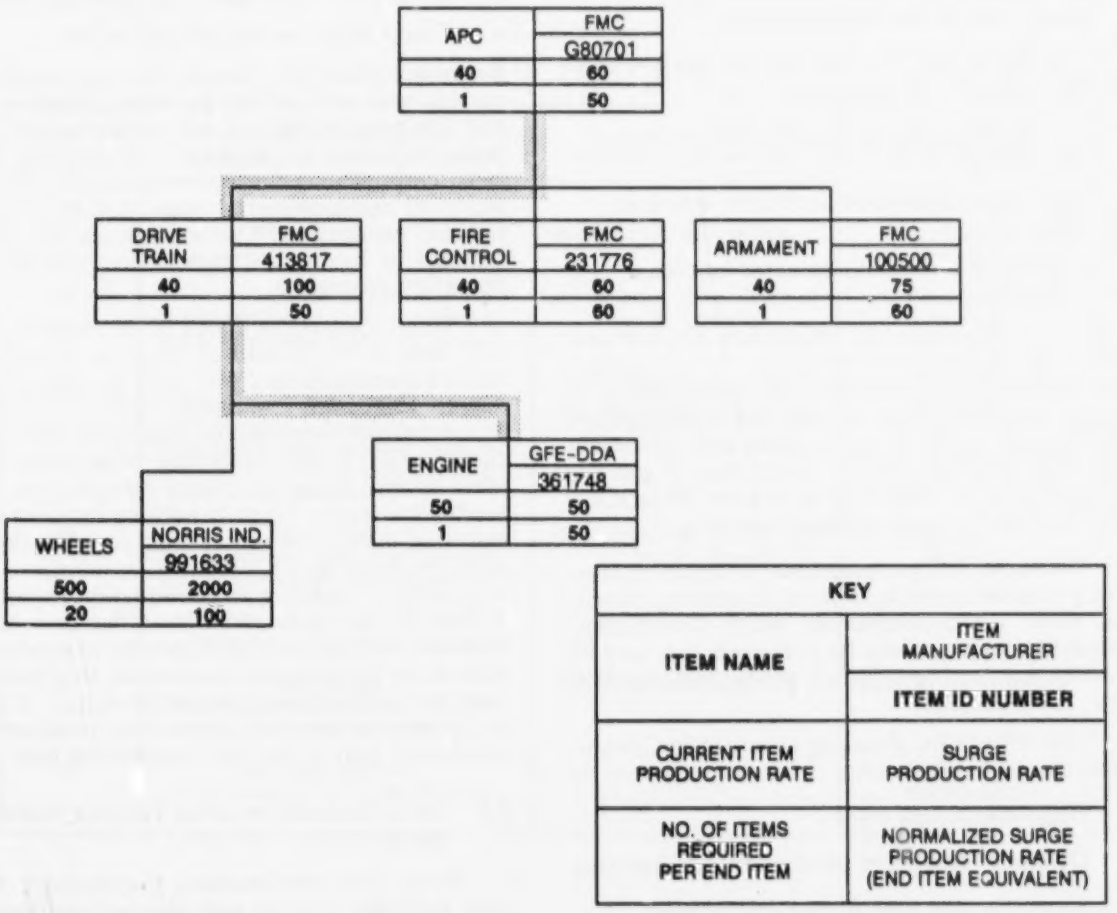


Figure 3.1-6 Production Acceleration Potential

greater production at the same time. This may not be the ideal, or the most realistic, strategy. Some systems may be highly desirable as a peacetime deterrent and also effective warfighting tools in a protracted conflict but, due to system complexity and production constraints, may not be viable in the early phases of a crisis.

In order to effectively evaluate industrial base sufficiency, the manager must know the effect that production rate changes for his program can have on the other programs in his mission area, as well as the impact that their production can have on his program.

3.3 THE DEFENSE INDUSTRIAL BASE

The defense industrial base is defined as:

> That part of the total privately-owned and Government-owned industrial production in the United States and Canada that is or shall be made available in an emergency for the manufacture of items required by the U.S. Armed Forces and selected allies.

Each facility in the base falls into one of three ownership/management categories:

- Government-owned/Government-operated (GOGO)
- Government-owned/Contractor-operated (GOCO)
- Contractor-owned/Contractor-operated (COCO).

Current policy calls for minimum Government ownership of production facilities. To accomplish this policy, DoD encourages the participation of private manufacturers through open competition and has sold many of the facilities and equipment that were acquired during World War II and the Korean conflict. There are at present 39 GOGOs and 79 GOCOs in the defense inventory.

While the policy to minimize Government ownership of production facilities is, in general, beneficial, there are circumstances where Government ownership may not only be preferred, but may be the only way to obtain certain production capabilities.

The criteria for choosing to establish Government-owned facilities are:

- Huge investment costs
- Dynamic changes in production requirements
- Short reaction time during emergencies
- Minimal use for civilian products.

Prohibitive investment cost may require DoD to establish and maintain production facilities. This is true especially in the area of ammunition where large wartime production requirements may dictate building a capacity far in excess of peacetime requirements. The result is that many facilities may be operated at minimum production rates or placed in an inactive status during peacetime. Because of the quick response time that DoD requires to reach high production rates, time will not be available to construct new facilities or reconfigure commercial facilities after a war begins. Additionally, many products require specialized equipment that cannot be converted to civil production or even other military products when demands are low.

DoD has found that contractor-operated plants are more beneficial and provide distinct advantages to Government operation. The rationale for contractor-operated plants is:

- Flexibility to changing production schedule
- Lower pay base for average workforce
- Retention of managerial and technical talent
- Competition in the private sector.

Because civilian contractors are not required to comply with civil service guidelines, they can hire and fire more easily and are not necessarily compelled to adhere to strict rules of seniority. Some large corporations may even maintain a bank of technical and managerial talent during periods of reduced production. Operating costs may also be reduced by having contractors compete for plant operation contracts.

To be counted as a part of the defense industrial base, a manufacturer must be classified as either a current defense producer or a planned producer. This status is weapon system/item specific. A current producer is any manufacturer actively participating in the peacetime production of defense items. These producers comprise the warm production base. There is nothing inherent in the status of current producer that suggests that the same producer has a mobilization mission. However, when a mobilization production objective is defined for an item and a manufacturer has expressed a willingness and capability to produce the item under mobilization conditions, that manufacturer is classified as a planned producer. Planned producers that are not also current producers are considered part of the cold production base.

3.4 MOBILIZATION AND THE NATIONAL ECONOMY

In an ideal environment, the manager would have sufficient current and planned producers to satisfy mobilization production requirements. However, as is often the case, the aggregate

identified capacity may fall short of the anticipated demand. When this occurs, the manager must depend on the remaining commercial industry to manufacture the additional weapons and equipment. These unplanned production assets are categorized as potential producers.

Potential producers are brought into the mobilization base by either conversion or expansion. Expansion, the building of new facilities or expanding existing ones, is considerably less disruptive to the national economy than conversion, but is likely to consume relatively greater quantities of critical resources to create the additional productive capacity. Expansion permits the continued production of a full range of civilian goods since the non-defense sources remain in the civilian market, but may require more time to achieve than conversion of sources that already possess all or some of the tooling and trained manpower.

Conversion of existing civilian production facilities offers the substantial advantages of existing supplier networks, manpower pools, and management structures. Where products are common, conversion can avoid much of the lead time required for expansion. However, if the products are radically different from the producer's customary business, the requirement for new equipment and manpower retraining may be equivalent to that of expansion.

Ultimately, mobilization is constrained by the availability of capital, labor, and materials. In order to better understand these three factors of mobilization, industrial analysts often partition the production process into product classes or product levels. There is no standard number of product levels. Various studies have used as few as three and as many as fourteen. However, for the purpose of this discussion, the six product levels depicted in Table 3.4–1* will be used. These levels represent function and degree of complexity. They are not used to depict any relationship among manufacturing facilities or facility ownership.

TABLE 3.4–1
LEVELS OF PRODUCTS

PRODUCT LEVEL	NAME OF PRODUCT AND PRODUCT DEFINITION	PRODUCT EXAMPLES	KEY ACTIVITY AT EACH LEVEL
I	**SYSTEM** The end product	ship, aircraft, tank, missile	***Assembling*** system
II	**SUBSYSTEM** A subassembly of the end product; a major subdivision of the end product	engine, bilge, air conditioning unit, gun, avionics	***Assembling*** subsystem
III	**COMPONENT** A fundamental constituent of a subsystem or an end product; a number of elements joined together to perform a specific function and capable of disassembly	carburetor, pump, heat exchanger, audio-frequency amplifier	***Assembling*** component
IV	**ELEMENT** A fundamental constituent of a component or a subsystem; one piece, or a number of pieces joined together which are not normally subject to disassembly without destruction	screw, gear, rotor, frontwheel bearing, frame	***Making*** element
V	**MATERIAL** The basic ingredient (material) from which an element is produced	fuel oil, plate, wire, casting	***Refining and/or forming*** material
VI	**RAW MATERIAL** The mined (or untransformed) material	ore mineral, oil extracted	***Extracting*** raw material

*This table is derived from Frisch, Dr. Franz A.P. and Acker, David D. "Financing Defense Systems Programs," ***Concepts***, Autumn 1981, Vol. 4, Number 4, p. 12.

Using the product level definitions, a weapon system can be appraised with regard to the value added at each level. Beginning with the system integrator, the cost of labor and capital (the value-added portion) can be separated from the cost of the materials (the subsystems). In like manner, the value added portion of each subsystem, component, element, and material can be identified. This supply breakdown structure is conceptually displayed in Figure 3.4-1.[+]

The term capital refers to all plant, equipment, and tooling required to manufacture a product. Recent industrial base studies agree that the primary limitation to increased production in the early stages of a mobilization is capital. These studies also agree that given sufficient time, the ability of the national economy to add new capacity is virtually unlimited.

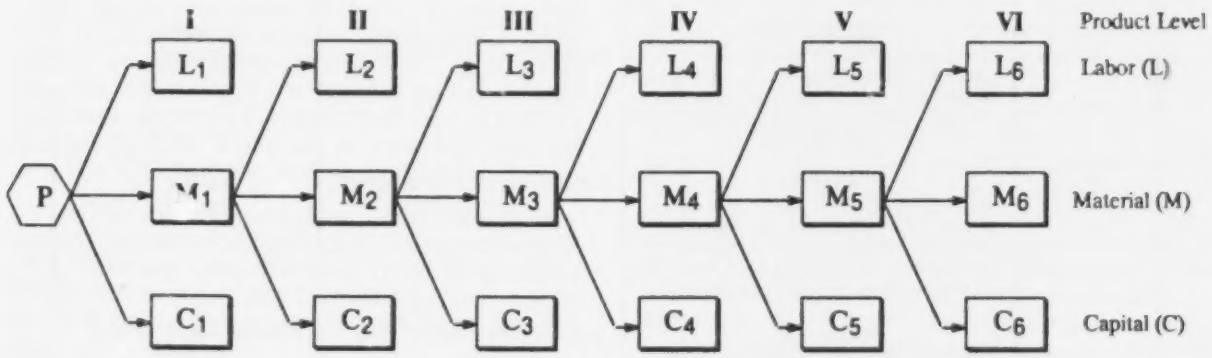
The effective manager must consider the three key factors affecting industrial capacity: contractor investment, defense acquisition practices, and preparedness actions. The incentive for contractor-initiated investment ultimately resides in return on investment. Unless a contractor can recover the investment cost either directly or indirectly, he will be reluctant to initiate facility modernization or expansion.

Defense acquisition practices often discourage manufacturers from establishing capacity. Examples of acquisition policies that threaten the long-term viability of the industrial base include:

- Cost-based production contracts which not only fail to reward contractors for reducing costs, but often penalize reduced costs by also reducing profits. In effect, the most efficient contractor earns the least profit
- Emphasis on low acquisition cost and schedule compliance to the virtual exclusion of low life-cycle costs and producibility and reliability considerations
- Increased emphasis on lowest price competition, which forces shortcuts and reduces incentives for investment in new equipment and quality systems and increases schedule risk
- The absence of risk-sharing for innovation
- Emphasis on forcing contractors to fund (and assume risk for) program-specific tooling and test equipment.

Preparedness actions are directed at eliminating identified production constraints. The failure to adequately fund preparedness planning prevents proper identification and justification of remedial actions. Modest investment (as compared to total program costs) in key tooling and test equipment during initial facilitization could permit substantial production increases during times of national emergency.

From an economic viewpoint the term labor accounts for the total workforce (both skilled and unskilled). Labor is likely to create the primary long-term resource difficulty in meeting large scale increases in demand. Skilled manpower is commonly used close to capacity and many skills are becoming increasingly scarce. Because training times can often exceed a year to obtain an adequate skill level, a prudent manager should have a well thought



Notes

1. P represents the end product
2. Subscripts 1 through 6 represent labor, material, and capital at the six product levels within the supply breakdown structure

Figure 3.4-1 Supply Breakdown Structure

+*Ibid*, p. 15.

out plan for increasing labor in a highly competitive mobilization environment.

Some of the possible alternatives are:

- Increase the level of automation
- Expand the workweek and maximize overtime
- Institute rigorous training programs
- Draw from labor surplus areas.

Most mobilization studies find that materials availability, whether in the form of raw materials, parts, components, or assemblies, is a major impediment to mobilization potential. Assemblers of complex systems can generally gear up production and draw down components and parts inventories more rapidly than supplier industries can replenish these inventories. These factors should be considered by the PM in preparing mobilization plans.

3.5 THE INTERNATIONAL MARKET

Sometimes it is advantageous for a manager to look beyond the domestic industrial base for program support. The reason may be political. The NATO rationalization, standardization, and interoperability agreement, as articulated in DoDD 2010.6, requires the DoD to encourage the participation of NATO manufacturers in the production of U.S. weapon systems. The reason may also be preference. When the manager is to deliver a product within strict cost and schedule parameters, a foreign source can frequently deliver a less costly and more timely product. This has proven to be true especially in the case of electronic components. Unfortunately there is growing concern that the reason may be unavailability. If key technological innovations are developed by foreign firms, that technology is a potential vulnerability unless it can be incorporated in a domestic production process.

PART I

CHAPTER FOUR

AN OVERVIEW OF THE IPP PROCESS

THERE IS AN EXISTING PROCESS THAT THE PM SHOULD CONSIDER WHEN INTEGRATING IP INTO HIS ACQUISITION PROCESS

4. AN OVERVIEW OF THE IPP PROCESS

This chapter provides an overview of the Industrial Preparedness Planning (IPP) process — the DoD program by which surge and mobilization requirements for fielded items are correlated with industrial capabilities. It describes the alternative methods that are available for conducting IPP and highlights the PM's role in each method.

It is important for the reader to understand that while the current industrial preparedness program recognizes the need to integrate industrial preparedness planning in the acquisition process, the mechanics of the process are oriented toward post-Milestone III, in-production weapon systems. This does not imply that the current process should be disregarded or discarded. Rather, the process should be accepted as the basis for building the necessary pre-Milestone III interfaces and procedures. Anytime the scope or function of a process is changed, there will be anomalies created that must be fixed in order to regain process integrity. The IPP process is no exception. The planning mechanism identified in the DoD industrial preparedness planning manual was not intended to be used for pre-production industrial preparedness. Hopefully, one of the results of this guide book will be the evolution of IPP and the planning mechanism.

4.1 THE INDUSTRIAL PREPAREDNESS PLANNING PROCESS

In brief, the industrial preparedness planning process consists of a variety of activities, the first of which is the development of specific policies for the conduct of the industrial preparedness program. Policy development is followed by the selection of the items and weapon systems that will be included in the preparedness plans, as well as the identification of the planned producers of those systems. Government and industry planners (Armed Services Production Planning Officer and Industrial Preparedness Representative, respectively) are then assigned to those systems and industrial facility surveys are conducted.

4.1.1 The Defense Guidance

Annual guidance from the Secretary of Defense is found in a classified document entitled "Defense Guidance." This document outlines the current scenario upon which defense planning is based. In addition, it generally establishes a policy for the conduct of the industrial preparedness program.

4.1.2 The Commander in Chief (CINC)/ Service Critical Items List (CIL)

Each year, the commanders of the Unified and Specified Commands (the warfighting commands) submit a list of critical weapon systems and components to the Joint Staff. This information is used to develop a single prioritized list of critical weapon systems and components, called the CINC CIL, which is furnished to the Defense Logistics Agency and the Military Services for their consideration.

Each Military Service then develops its own annual list of critical weapon systems and components, based in part on information furnished by the Joint Staff. The Services' selection to be included in their industrial preparedness planning efforts is announced in a document called the "Industrial Preparedness Planning List" or IPPL. These planning lists are usually divided into two sections. Major weapon systems are listed in Section I and major components are listed in Section II. The components requiring vertical planning are listed under the appropriate weapon system or end item, and those common to more than one system are so identified. Also identified are the end users and the Department of Defense organization responsible for the specific industrial preparedness planning.

Each Service must submit its IPPL to the Deputy Under Secretary of Defense for Industrial and International Programs and to the Defense Logistics Agency, which then develops its own IPPL. The weapon systems and components listed are included in surge and mobilization plans.

4.2 OBJECTIVES OF MOBILIZATION PLANNING

The objectives of mobilization planning are:

- To realistically plan the total requirement for post-mobilization day (M-day) production of the critical weapon systems and items listed in the Industrial Preparedness Planning Lists using any one of a number of different methods (see Section 4.6)

- To identify planned emergency producers.

4.3 OBJECTIVES OF SURGE PLANNING

Surge planning consists of an in-depth assessment of the cost and effort that would be required to rapidly increase peacetime production rates within the limits of the contractor's existing facilities. This effort identifies actions required to ensure significant production rate increases within 6 months for consumable-type items and within 12 months for more complex major weapon systems. The planning process includes, but is not limited to, an examination of the need for long lead time components, special tools and test equipment, component prefabrication, skilled manpower, and storage space to store long lead time and prefabricated components. Surge candidate items and weapon systems are selected by the Military Services based upon a composite critical items list furnished by the Joint Staff. Planners then perform an analysis to identify the options that provide significant production rate increases for the least resources in the shortest time practical, with the parameters and constraints provided by the current Defense Guidance. The analysis is furnished to the DoD Component headquarters for final selection, programming, and funding.

Government-owned, government-operated (GOGO) production facilities may be included in surge production plans. In general, DoD maintenance depots are not considered because the Department of Defense may have to surge maintenance simultaneously with production. Surge planning must consider that the Department of Defense may elect to surge maintenance and repair activities at private sector facilities concurrently.

4.4 THE PLANNED PRODUCER

Becoming a planned producer is the key initial step for industry to support industrial preparedness. Interested companies should contact their assigned Armed Services Production Planning Officer (ASPPO) or responsible DoD buying component. Information can be obtained by contacting the ASPPO Coordinating Office, the Defense Logistics Agency, Cameron Station, Alexandria, Virginia, (202) 274-7651/7751. Potential planned producers must meet a host of criteria, not the least of which is the willingness to participate on a voluntary basis and to have the capacity to produce critical items during a surge or mobilization. In addition, each planned producer must designate an Industrial Preparedness Representative (IPR) as an official point of contact with the ASPPO. The IPR must then provide information on production capabilities, physical characteristics and other data required for the execution of the DD Form 1519-2 Industrial Facility Survey (see below) and sign it along with the ASPPO.

Management of a multiplant facility may designate one or more IPRs, only one of whom shall have the authority to sign all planning documents.

4.4.1 Benefits of Being a Planned Producer

Besides providing an important emergency production capability to the government, planned producers receive certain benefits for participating in this program. Participating firms are included on the bidder's mailing list for any solicitation for their planned items and are solicited in all such procurements over $10,000. In addition, a total small business set-aside will not be authorized when one or more large business planned producers of the item desires to participate in the acquisition. In the case of an emergency or to maintain essential industrial mobilization capability, other than full and open competitive procedures are allowed to maintain a producer. Furthermore, participants may lease Government-owned property under authority of the Military Leasing Act of 1947.

4.4.2 Register of Planned Emergency Producers (RPEP)

Planned producers (and their ASPPOs) are listed in the RPEP, issued annually by the Defense Logistics Agency. A firm with a number of facilities can choose to be registered as a single unit when the planning is done by the corporate headquarters. Otherwise each facility is listed separately.

4.5 THE ARMED SERVICES PRODUCTION PLANNING OFFICER (ASPPO)

An Armed Services Production Planning Officer is designated for each individual plant listed in the RPEP. An ASPPO usually is assigned responsibility for numerous plants belonging to different companies as well as multiple plants for individual firms.

4.6 PLANNING WITH PRIME CONTRACTORS

The Department of Defense Industrial Preparedness Planning Manual (DoD 4005.3-M) identifies four different methods that can be used for industrial preparedness planning with prime contractors. These are:

- The DD Form 1519
- The Data Item Discription (DID)

- The Direct Industrial Base Plan (DIBP)
- Special studies.

4.6.1 The DD Form 1519 Method

The DD Form 1519 method is used to accomplish production planning with firms that have voluntarily entered the Industrial Preparedness Planning Program. Planning begins with the appropriate acquisition organization determining the total planning requirement for a specific weapon system or component and establishing a tentative distribution among selected sources. These production planning schedules are then sent to the responsible ASPPO who, along with the firm's IPR, reviews the acquisition activity guidance and conducts a plant survey. The results are recorded on a Department of Defense Form 1519–2. The ASPPO and IPR then determine the subcontracted items to be included in the plan and the quantities needed. The IPR identifies subcontractor sources and prepares a proposed subcontractor schedule. If these sources are listed in the RPEP, the ASPPOs for the prime contractor will contact the ASPPOs of the selected subcontractors to determine if sufficient unallocated capacity is available. If the potential subcontractor is not listed, the Planning Officer for the geographical area must contact the potential subcontractor and solicit the firm's participation in the industrial preparedness planning program. The ASPPO for the prime contractor then prepares the subcontractor planning requirements (using the Department of Defense Form 1519) and sends them to the cognizant lower tier ASPPOs for negotiation.

The subcontractor DD Form 1519s are returned to the prime contractor ASPPO for review with copies from the first tier subcontractors given to the prime contractor Industrial Preparedness Representative. An overall planned production schedule is negotiated, and forwarded to the initiating acquisition activity for review. (See Figures 4.6–1 and 4.6–2). The responsible acquisition activity is required to review all proposed industrial preparedness measures and communicate the disposition of those proposals to the planned producer through the ASPPO.

4.6.2 The DID Method

Most Department of Defense contracts contain one or more Data Item Descriptions (DID) requiring information from which the acquisition activity can obtain required industrial preparedness planning data through an appropriate contract. Funding source for the DID will normally be that used for the designated system. The contracting officer however, may elect to fund the DID as a separate contract line item or as part of the contract's total data requirement cost in an appropriate overhead account. The proper use of the DID will require close coordination between the contracting officer, the program manager, and industrial preparedness personnel, including the ASPPO.

The acquisition activity must specify the required level of surge and mobilization production and the necessary comprehensive planning. Acceptance of the DID is a contractual obligation to provide information such as:

- An official point of contact within the participating company for conducting and maintaining the planning process
- Information required to develop realistic prime and subcontractor production schedules
- Information on bottlenecks or changes affecting the company's ability to provide the desired production.

A contractor formally becomes a planned producer only by executing the agreement contained on page one of the DD Form 1519 whereupon the firm is included in the Register of Planned Emergency Producers.

ASPPOs will allocate plant capacity on the basis of the response to the DID requirement, unless the information does not meet contract stipulation or the firm is not a formal planned producer. (See Figures 4.6–3 and 4.6–4.)

4.6.3 The DIBP Method

The acquisition activity may choose to conduct industrial preparedness planning directly with a selected prime contractor instead of having the ASPPO perform this service. The appropriate ASPPO will be notified of the items and sources involved, and will be invited to any meetings between industrial management and the acquisition activity.

Under this alternative the acquisition activity's representative shall perform all related ASPPO functions, except for the following:

- Allocating capacity (The signature of the ASPPO on the production schedule is mandatory for planning to be valid), and
- Maintaining the plant loading records.

The acquisition activity must negotiate the production schedule directly with the planned producer and the ASPPO must sign a copy of the completed planning schedule. (See Figures 4.6–5 and 4.6–6.)

Acquisition Activity Determines Total Planning Requirement and Establishes Tentative Distribution of Selected Sources
If Source Not Listed in RPEP, contact Appropriate ASPPO
ASPPO Will Provide Data But Will Not Conduct Facility Survey (1519-2) Until Production Planning Schedule (1519) is Received From Acquisition Activity
Acquisition Activity Determines Desired Distribution Pattern and Prepares Necessary Production Planning Schedules for Each Selected Source
Acquisition Activity Forwards Production Planning Schedules With Necessary Supporting Documentation to ASPPO
Upon Receipt of Production Planning Schedule and Supporting Information ASPPO Will:
• Review Acquisition Activity Submissions
• With IPR, Review Acquisition Activity Guidance, Conduct Plant Survey, Complete 1519-2 and Negotiate a Planned Production Schedule (1519)
• Explain Subcontractor Concepts to Prime Contractor's IPR, if Subcontractor Planning is Necessary
• With IPR, Jointly Determine Subcontractor Items to Be Included in Plan and Potential Subcontractors
• Screen Sources Against RPEP and Contract ASPPO of Registered Sources to Determine if Unallocated Capacity is Available to Accommodate Subcontractor Schedule
• If Management Selected Source is Not Registered, the ASPPO in the Geographical Area Will Contact Subcontractor and Solicit His Participation in IPP
• Program Subcontractor Planning Schedule on DD Form 1519. Copies Will Be Sent to Prime, Subcontractors, and Cognizant ASPPOs
• Make Schedules Required from the First Tier Subcontractor Available to the Prime Contractor IPR for Review
• Both IPR and ASPPO Should Sign Production Planning Schedule and Submit to Acquisition Activity
• Process DD Form 403 for Plants Not Registered Previously in RPEP
• Obtain Copies of Subcontractor Planning
• Return Original Validated Production Planning Schedule (Prime and Subcontractor) to the Acquisition Activity.
Acquisition Activity Shall Analyze Entire Planning Schedule to:
• Ensure Adequacy and Correctness
• Identify and Initiate Necessary Corrective Actions
• Determine if IPM Should be Initiated
• Determine if Special Study Should be Initiated.

Figure 4.6–1 Flow Diagram for the 1519 System

Functions	Responsibility: ACQUISITION ACTIVITY	ASPPO	IPR
1. DETERMINE PLANNING REQUIREMENT	•		
2. ESTIMATE DISTRIBUTION PLAN	•	X	
3. DISTRIBUTE PLANNING SCHEDULE FOR EACH SOURCE & FORWARD TO EACH ASPPO WITH SUPPORTING DOCUMENTATION	•	X	
4. REVIEW 3, ABOVE		•	
5. JOINTLY REVIEW 3, ABOVE		•	•
6. CONDUCT PLANT SURVEY		•	•
7. COMPLETE DD FORM 1519-2		•	•
8. EXPLAIN SUBCONTRACTOR PLANNING CONCEPTS TO IPR		•	X
9. VALIDATE END-ITEM SCHEDULE (CONTINGENT ON SUBCONTRACTOR PLANNING)		•	•
10. JOINTLY DETERMINE SUBCONTRACTOR PLANNING CONCEPT TO IPR		•	•
11. SCREEN MANAGEMENT SELECTION SOURCES AGAINST RPEP FOR SUBCONTRACTORS (REGISTER SUBCONTRACTOR IF APPROPRIATE)	X	•	X
12. PREPARE DD FORM 1519		•	•
13. MAKE AVAILABLE FIRST TIER 1519 FOR PRIME CONTRACTOR		•	X
14. OBTAIN COPIES OF ALL SUBCONTRACTOR PLANNING SUPPORTING THE END-ITEM		•	
15. NEGOTIATE PLANNED PRODUCTION SCHEDULE		•	•
16. PROCESS DD FORM 403, RPEP REGISTRATION		•	
17. RETURN ONE COPY OF VALIDATED PRIME & SUBCONTRACTOR PLAN TO ACQUISITION ACTIVITY	X	•	
18. ACQUISITION ACTIVITY SHALL REVIEW ENTIRE PLAN FOR: ADEQUACY, ACCURACY, CORRECTIVE ACTIONS, IPM, AND IF IEB STUDY SHOULD BE INITIATED	•	X	

NOTE: • = Responsible
X = Coordination

Figure 4.6–2 DD Form 1519 Planning Matrix

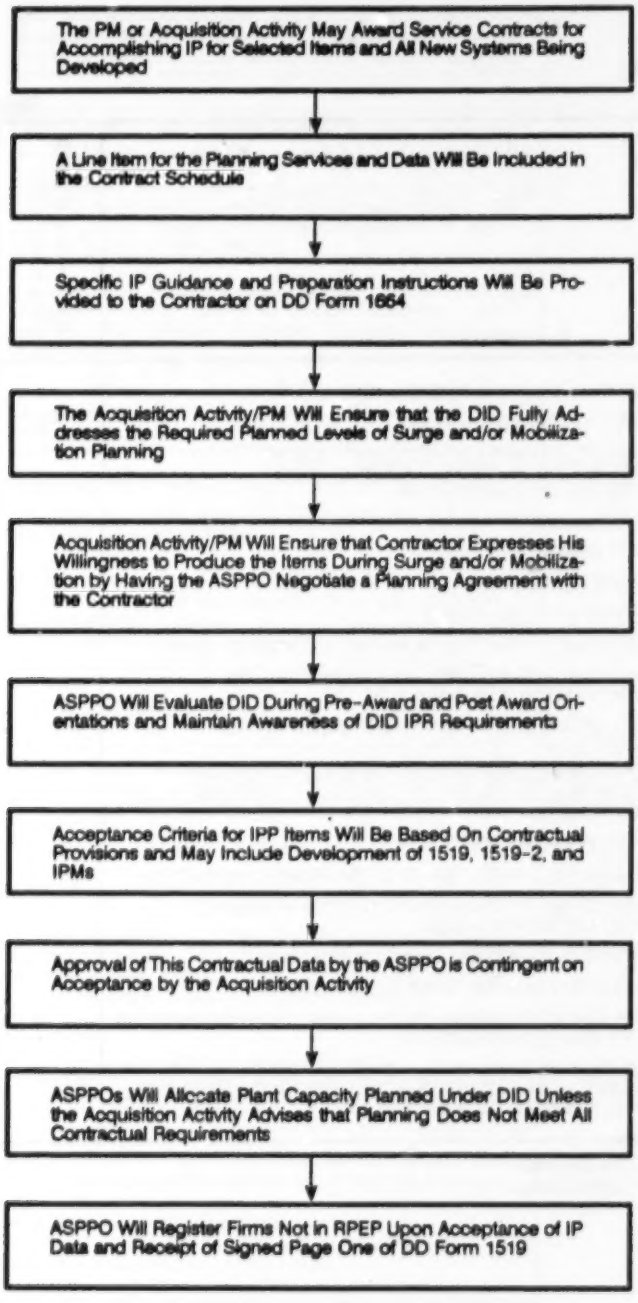

The PM or Acquisition Activity May Award Service Contracts for Accomplishing IP for Selected Items and All New Systems Being Developed
A Line Item for the Planning Services and Data Will Be Included in the Contract Schedule
Specific IP Guidance and Preparation Instructions Will Be Provided to the Contractor on DD Form 1664
The Acquisition Activity/PM Will Ensure that the DID Fully Addresses the Required Planned Levels of Surge and/or Mobilization Planning
Acquisition Activity/PM Will Ensure that Contractor Expresses His Willingness to Produce the Items During Surge and/or Mobilization by Having the ASPPO Negotiate a Planning Agreement with the Contractor
ASPPO Will Evaluate DID During Pre-Award and Post Award Orientations and Maintain Awareness of DID IPR Requirements
Acceptance Criteria for IPP Items Will Be Based On Contractual Provisions and May Include Development of 1519, 1519-2, and IPMs
Approval of This Contractual Data by the ASPPO is Contingent on Acceptance by the Acquisition Activity
ASPPOs Will Allocate Plant Capacity Planned Under DID Unless the Acquisition Activity Advises that Planning Does Not Meet All Contractual Requirements
ASPPO Will Register Firms Not in RPEP Upon Acceptance of IP Data and Receipt of Signed Page One of DD Form 1519

Figure 4.6–3 DID Flow Chart

FUNCTIONS	RESPONSIBILITY				
	ACQUISITION ACTIVITY	PM	CONTRACTING OFFICER	CONTRACTOR	ASPPO
1. THE DID WILL BE CONSIDERED FOR ALL NEW SYSTEMS BEING DEVELOPED AND CRITICAL I/WS	•	•			
2. AWARD OF INDIVIDUAL SERVICE CONTRACT TO ACCOMPLISH IP PLANNING	•	•	•	•	X
3. A LINE ITEM FOR THE PLANNING SERVICES AND DATA WILL BE INCLUDED IN THE CONTRACT SCHEDULE			•	•	
4. SPECIFIC GUIDANCE WILL BE PROVIDED TO CONTRACTOR ON DD FORM 1664		•	•	•	
5. PROPER USE OF THE DID WILL REQUIRE CLOSE COORDINATION BETWEEN CONTRACTING OFFICER, PM AND ASPPO		•	•	•	X
6. THE PM WILL ENSURE THAT DID PRODUCTION PLAN FULLY ADDRESSES SURGE AND/OR MOBILIZATION PLANNING REQUIREMENTS AND THAT THE CONTRACTOR IS WILLING TO PRODUCE THE ITEM DURING AN EMERGENCY	X	•		•	X
7. THE ASPPOS WILL EVALUATE DIDS DURING PREAWARD AND POSTAWARD ORIENTATIONS AND MAINTAIN AWARENESS OF DID REQUIREMENTS				•	•
8. ACCEPTANCE CRITERIA FOR IP ITEMS WILL BE BASED ON CONTRACTUAL PROVISIONS AND MAY INCLUDE DEVELOPMENT OF DD FORMS 1519, AND IPMS			•	•	•
9. ASPPOS WILL ALLOCATE PLANT CAPACITY PLANNED UNDER DIDS UNLESS THE ACQUISITION ACTIVITY ADVISES THAT PLANNING DOES NOT MEET ALL CONTRACTUAL CAPACITY INFORMATION REQUIREMENTS	X				•

NOTE: • = Responsible
X = Coordination

Figure 4.6–4 DID Matrix

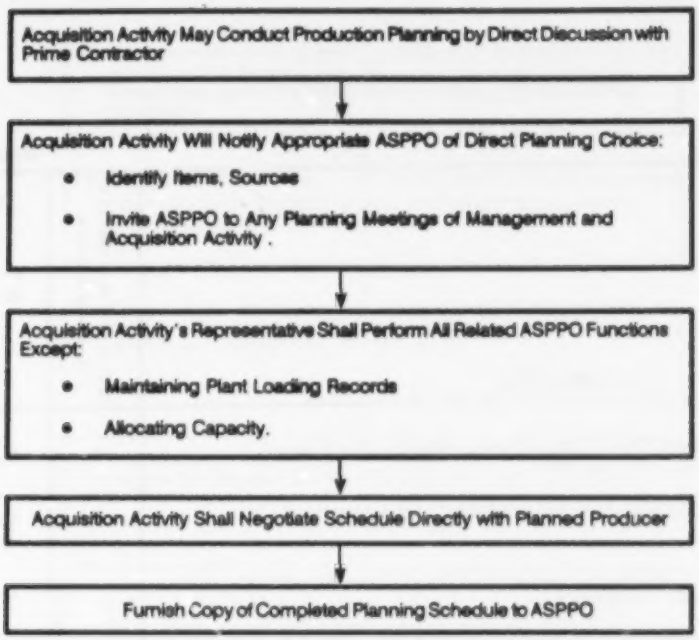

Acquisition Activity May Conduct Production Planning by Direct Discussion with Prime Contractor
Acquisition Activity Will Notify Appropriate ASPPO of Direct Planning Choice:
• Identify Items, Sources
• Invite ASPPO to Any Planning Meetings of Management and Acquisition Activity .
Acquisition Activity's Representative Shall Perform All Related ASPPO Functions Except:
• Maintaining Plant Loading Records
• Allocating Capacity.
Acquisition Activity Shall Negotiate Schedule Directly with Planned Producer
Furnish Copy of Completed Planning Schedule to ASPPO

Figure 4.6–5 DIBP Method Flow Chart

FUNCTIONS	RESPONSIBILITY: ACQUISITION ACTIVITY	PRIME CONTRACTOR IPR	ASPPO
1. CONDUCT PRODUCTION PLANNING BY DIRECT DISCUSSION WITH PRIME CONTRACTOR	•	•	•
2. ACQUISITION ACTIVITY NOTIFIES ASPPO OF "DIRECT PLANNING" CHOICE	•		X
3. INVITE ASPPO TO ANY PLANNING MEETINGS	•		X
4. ACQUISITION ACTIVITY'S REPRESENTATIVE WILL PERFORM ALL ASPPO FUNCTIONS EXCEPT POSTING PLANT RECORDS AND ALLOCATING CAPACITY. (SIGNATURE OF ASPPO IS MANDATORY FOR PLANNING TO BE VALID)	•		X
5. NEGOTIATE SCHEDULE DIRECTLY WITH PLANNED PRODUCER	•	•	X

NOTE: • = Responsible
X = Coordination

Figure 4.6–6 DIBP Matrix

4.6.4 Special Studies

DoD Components may elect to gather industrial preparedness planning (IPP) data by conducting a special study. This study could contain a survey of a specific segment of the industrial base rather than information on critical weapon systems and items. Such a study could determine the manufacturing capacity of either industry or commodity sectors. The format and application of such studies are left to the discretion of each DoD Component. If necessary, a study contract may be awarded to a contractor to accomplish IP planning.

The appropriate ASPPO is invited to participate. At the conclusion of the study, the ASPPO for each planned facility with the concurrence of the acquisition activity, coordinates plant capacity allocation and completes the plant loading record. (See Figures 4.6–7 and 4.6–8.)

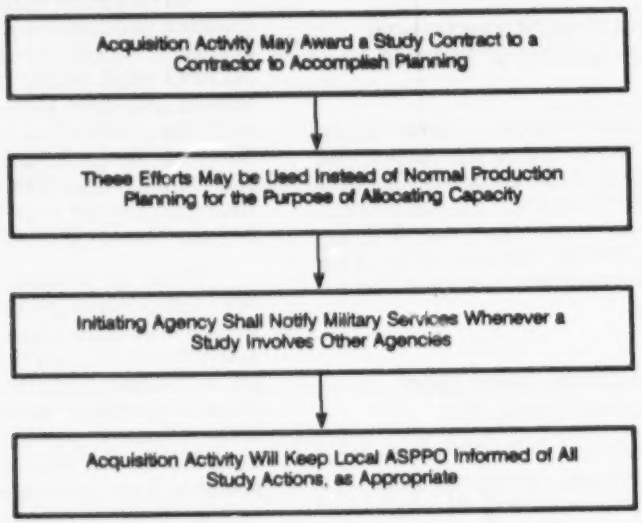

Acquisition Activity May Award a Study Contract to a Contractor to Accomplish Planning
These Efforts May be Used Instead of Normal Production Planning for the Purpose of Allocating Capacity
Initiating Agency Shall Notify Military Services Whenever a Study Involves Other Agencies
Acquisition Activity Will Keep Local ASPPO Informed of All Study Actions, as Appropriate

Figure 4.6–7 Special Studies Flow Chart

FUNCTIONS	RESPONSIBILITY: ACQUISITION ACTIVITY	CONTRACTOR	ASPPO
1. STUDY CONTRACT MAY BE AWARDED TO A CONTRACTOR TO CONDUCT IP PLANNING	•	X	X
2. INITIATING DEPARTMENT WILL NOTIFY OTHER SERVICES IF IPP STUDY INVOLVES OTHER DEPARTMENTS	•		X
3. CONTRACTOR CONDUCTS STUDY AND FORWARDS IT TO THE ACQUISITION ACTIVITY	X	•	X
4. COMPLETE PRODUCTION PLANNING SCHEDULE	•	•	•

NOTE: • = Responsible
X = Coordination

Figure 4.6–8 Special Studies Matrix

4.6.5 Updating Plans

Production plans are updated annually for surge items on the Industrial Preparedness Planning List (IPPL) or when requirements change significantly. Plans for all other items are updated every two years. If a planned item is deleted from the IPPL, the prime contractor schedule will be canceled promptly by the acquisition activity and the subcontractor schedules by the ASPPOs.

4.7 MULTISERVICE REQUIREMENTS FOR A GIVEN MANUFACTURING FACILITY

Multiservice requirements for a given manufacturing facility are submitted to the responsible Military Service/agency acquisition activity for consolidation. If the ASPPO receives uncoordinated planning requests from more than one Military Service, the ASPPO refers the requests back to the responsible Military Service/agency acquisition activity for consolidation.

4.8 WHEN PLANNED PRODUCTION EXCEEDS PLANT CAPACITY

Normally, shortfalls in planned production capacity are distributed proportionally to requirements. However, conflicting demands can be resolved by the ability of some firms to accelerate production. When a request for acceleration planning cannot be accommodated without infringing on capacity already allocated, the earlier allocation will be adjusted by the ASPPO to accommodate the accelerated production, in consultation with the planned producer and the responsible acquisition activity. Only accelerated production is accorded such preference.

An exception to this principle applies when the planned producer is a sole source for an item that otherwise would be displaced. In this case, the ASPPO shall notify the acquisition activities involved, and shall authorize no change in allocation until the conflict has been resolved by the Military Services, the Defense Logistics Agency (DLA), the Maritime Administration (MARAD), or, if necessary, by the Joint Material Priorities and Allocations Board (JMPAB).

When a production planning schedule has been temporarily invalidated, such as for the failure of key industrial plant equipment, the acquisition activity may instruct the ASPPO to place the schedule in a suspended status for revalidation when the situation in the plant changes. If the acquisition activity refuses, it may locate a new source, preserving as much of the planned subcontract structure as possible if the new contractor and the subcontractors involved in the change consent.

PART I

CHAPTER FIVE

THE CONCEPT OF GRADUATED MOBILIZATION RESPONSE

THERE IS A NEW CONCEPT OF MOBILIZATION PLANNING AND EXECUTION THAT MAY MAKE IT EASIER FOR THE PM TO EFFECT THE IP RESPONSIBILITY

5. THE CONCEPT OF GRADUATED MOBILIZATION RESPONSE

5.1 BACKGROUND

The Department of Defense and other Federal agencies are adopting a new planning and preparedness system that will provide a capability to harness U.S. and Canadian economic potential to respond to a wide variety of crises. This new approach provides a graduated series of industrial response levels, keyed to the perceived severity of a possible or ongoing crisis. It involves:

- Maintaining a flexible preparedness capability through development of ***comprehensive*** preparedness plans and programs
- More ***detailed planning***, targeted on specific problems and objectives when it becomes apparent that a crisis may occur
- Implementation of ***preparatory actions and investments*** to improve the posture of the industrial base based on the nature of a specific possible crisis
- Alternate levels of ***industrial response*** (surge, full industrial mobilization, total industrial mobilization) to respond to a crisis.*

This graduated mobilization response (GMR) capability has been endorsed by the Secretary of Defense and the President's National Security Advisor, and DoD and other Federal agencies are currently attempting to institutionalize the process within the Federal preparedness community. The GMR process was described in the January 1988 President's National Security Strategy:

> On the industrial side, the maintenance of a broad, technologically superior mobilization base is a fundamental element of U.S. defense policy...We rely on the size and strength of the U.S. economy as our ultimate line of defense. And, as nuclear weapons reductions are negotiated, the capability of the U.S. and allied mobilization bases rapidly to generate additional conventional military forces and the supplies and equipment to sustain them, becomes increasingly important...
>
> Defense industrial mobilization policies focus on steps that industry and government can take during peacetime and in the early stages of a crisis to acquire long-lead time items and to prepare for surge production... To ensure that our industrial base can respond in an adequate and timely fashion to a broad range of potential emergencies, we are testing a new concept of industrial mobilization responses linked to early warning indicators. Under this concept, the readiness of our industrial base would be progressively increased as intelligence suggested an increasing probability of hostile actions directed against U.S. interests. ***To support this concept, in peacetime planners will identify and catalog relevant industrial base capabilities, prepare specific response options, and create a series of graduated responses to be implemented within existing capabilities at a time of crisis.***

This graduated mobilization response capability offers several advantages over more traditional approaches to maintaining industrial preparedness. For example:

- It allows planners to focus in peacetime on relatively inexpensive planning, while deferring more costly investments in standby production capacity or end item/component inventories
- By providing for ***comprehensive*** planning in peacetime and implementation of preparedness investments during the early stages of a crisis, the system provides a ***more flexible capability*** to respond appropriately to a wide variety of potential crises
- It provides a structure to develop peacetime estimates of likely resource requirements, program impacts, costs, and benefits for a range of possible emergency situations

*This graduated mobilization concept is discussed more fully in Reed, L.S., ***et al.***, "Improving Intergovernmental Mobilization Planning: Preliminary INDCON/PERSCON Concept" (The Analytic Sciences Corporation, TR-5263-4, 1987) and in Taibl, P.E., "Graduated Mobilization Response: A Key Element of National Deterrent Strategy," Mobilization Concepts Development Center, April 1988.

- It provides the framework for a clearer and more coherent definition of agency planning and management responsibilities

- It provides for ***a more timely*** industrial response capability by allowing policymakers to make initial, relatively inexpensive and non-provocative industrial responses in the early stages of a crisis (or in the warning period preceding a crisis)

- Once a crisis begins to develop, the plans created in peacetime and the graduated response process itself provide a ***more effective means to direct an industrial response***. It provides policymakers a wide array of response options and the capability to make widespread or selective industrial sector responses.

Several actions are necessary to ensure that the graduated response system will be effective. Two of the more important of these are:

- ***Development of an effective peacetime planning process***. Current Federal preparedness planning efforts are ad hoc and generally ineffective. Effort to implement preparedness measures and increase defense production at higher alert levels will fail, or suffer unacceptable delays, unless the Government provides the necessary preparedness planning baseline

- ***Development of effective alert, assessment, and decisionmaking processes to ensure that necessary industrial responsiveness actions are taken in a timely manner***. A theoretical capability to increase industrial responsiveness during a pre-conflict warning period has little value without a corresponding ability to recognize warning, identify the need for an industrial response, and take appropriate action in a timely manner.

5.2 THE INDCON CONCEPT AND GMR

The GMR program is based on a concept originally described by the term Industrial Alert Condition (INDCON). This concept was envisioned as a shorthand description of a large number of different emergency measures that can increase industrial responsiveness or reallocate American manpower resources. It differed from the existing Defense Condition (DEFCON) system, on which the concept was based, in one significant way. Whereas the DEFCON system defines a series of actions that are taken automatically when any given DEFCON level is reached, the INDCON concept, and the emerging GMR process, ***suggest actions and options that should be considered at each crisis stage***. This system is not intended to supplant the enormous range of mobilization policies, plans, or statutes already in existence. Rather, it is intended as mobilization planners' and policymakers' organizing tools, providing a framework into which many different actions that may be performed by different agencies can be inserted to check for logic, sequencing, and similar matters. This section describes the original INDCON concept now being incorporated in GMR.

5.2.1 INDCON "Ladder"

The scale for INDCONs is similar to that for DEFCONs, where DEFCON 1 is the highest alert status. It may be useful to visualize a "ladder" (displayed in Table 5.2-1) which begins at a basic peacetime level and proceeds through five steps to the "total mobilization" of national resources. To the right of each rung is a general description of activities that could "trigger" movement from one alert condition to another. The first three rungs are, strictly speaking, "pre-mobilization" steps designed to improve preparedness for the crisis that may follow. In general, INDCON 5 corresponds to expanded preparedness planning, while INDCON 4 generates the appropriate preparedness.

5.2.2 INDCON Levels

Premobilization Phases - At INDCON 6, the U.S. is in a monitoring mode: observing national and international developments for signals of disequilibrium. Principal emphasis is given to maintaining productive and efficient peacetime production and a minimum level of preparedness for emergencies. The industrial preparedness community is "planning to plan," i.e., identifying general types of problems that would be likely to arise in a crisis and potential methods for dealing with them. Funding for direct mobilization investments is limited.

Targeted planning (INDCON 5) ensues as the outlines of a possible crisis come into focus. General crisis management programs are reviewed and refined. Additional funds may be required to gather data on selected industries and resources or to increase preparedness activities, but no major new funding would be allocated for increases in production.

INDCON 4 occurs when the demand for increased production appears likely and some ***preparatory actions*** are required. Additional funds are allocated to improve industrial base readiness through the procurement of essential tooling, raw materials, and other long lead items which can be used even if the situation does not escalate. Many

TABLE 5.2-1
INDCON LADDER

	INDCON LEVEL	THRESHOLD
MOBILIZATION	1. "TOTAL MOBILIZATION"	Indication that current level of mobilization is insufficient to overcome threat
	2. "FULL MOBILIZATION"	Challenge to U.S. national security
CRISIS MANAGEMENT	3. "SURGE"	Provocation, action, or threat to U.S. interests
	4. "PREPARATORY ACTIONS"	Undesirable pattern clarified; adversarial preparations
	5. "TARGETED PLANNING"	Unusual developments identified
PREPARATION	6. "PLAN TO PLAN"	Deliberate planning and investment

actions at this stage could be handled through reprogramming, but some additional new funding will probably be needed.

Mobilization Options - INDCON 3 results from a decision to surge end-item production. The surge might be conducted by reprogramming existing funds, but would probably require supplemental funding. The production increase could be fairly limited, e.g., expanding plant operations from a 1-8-5 schedule (1 shift of 8 hours per day, 5 days a week) to 2-8-5. Some minor disruption of the marketplace may be required as production resources are diverted through the enforcement of government programs, but this should dissipate quickly.

One critical element of INDCON 3 is that it must involve preparatory actions for mobilization unless the nature of the crisis clearly suggests that moving to higher levels is unlikely. Current DoD surge planning does not explicitly recognize the implications of the clear demarcation between surge and mobilization: surge is concerned with immediate output increases from current defense producers while mobilization (by definition) begins to draw resources and producers away from nondefense sectors. There is a significant lead time to accomplish this, and it may require funds and resources that would otherwise be devoted to obtaining ***immediate*** increases from current producers. INDCON 3 must allow for these long lead time preparedness actions for subsequent phases.

INDCON 2 can be thought of as ***full industrial mobilization***. During this stage, the production of nonessential consumer goods using vital materials and other resources may sharply decline. To achieve the desired level of production, some nonessential civilian production may be curtailed (either to limit nonessential demand for scarce materials or to prepare firms to be converted to Government production). The expansion of existing facilities and construction of new facilities may become necessary. This level of effort will require increased government use of production controls and could result in moderate economic disruption.

INDCON 1 is a state of ***total industrial mobilization***. In this stage, the full force of the industrial base is focused on the national emergency. Moderate to severe disruption is caused by widespread conversion and diversion of nonessential industrial resources and expansion of essential production capacity. Because of this economic disruption,

planning is also required for the eventual return to normal economic conditions.

5.3 GMR PLANNING ELEMENTS

The GMR concept suggests a comprehensive peacetime preparedness program that would involve many elements of DoD and other Federal departments and agencies. Comprehensive planning and identification of preparedness options are critical to the success of the system. Through this focused planning effort, Federal agencies can identify the problems that are likely to occur in future emergencies and prepare possible methods to resolve them.

Providing the means to gain rapid access to additional resources (tooling, raw materials, people, etc.) is the basic requirement for industrial responsiveness planning. The peacetime system of competitive contracting and long design/development/production cycles may be (barely) adequate for peacetime, but improved Government action will be needed to respond to the crisis. Programs to manage resources must be geared to the intensity of the imminent or perceived crisis. "Limited" wars will require some increased management, although the range of actions may be severely constrained. There may be similar constraints during the ambiguous warning period preceding a major crisis. The following sections discuss some of these planning issues.

5.3.1 Determination of Requirements

Determining a range of possible requirements for future emergencies is a critical element of a preparedness system. Requirements for specific emergencies, even if expressed in general terms, form the basis for subsequent preparedness planning efforts. Pre-war planning requirements should be flexible. With regard to industrial mobilization, it is sometimes believed that a single set of requirements can be defined by the "user," and that management's sole function is to see that those demands are met as fully and promptly as possible. This can lead to a conclusion that the American economy — the world's largest and most flexible — cannot respond to sudden changes in demand. This is only true if the output is overspecified and alternate solutions are not considered.

One of the most important elements of American industrial mobilization potential is the ability of industry to innovate. Taking advantage of this capability requires a full understanding of what industry can provide rather than simply depending on the user to articulate what must be provided.

Additionally, demand for resource allocations from the civil sector and from Allies can be as important as military requirements. Determining requirements for resources while ignoring these two components will yield artificially low overall demand. This has an impact on resource planning, for such planning cannot be performed against a single requirement, but instead must consider the capability to meet a variety of potential requirements.

5.3.2 Establishment of Government Goals and Options

A wide range of industrial responsiveness options is available to deal with any potential crisis. For most of these situations, very definite limits will exist on how much the government is willing to inconvenience the public — if at all. The objective of the mobilization management system then becomes devising an appropriate reaction within these constraints. One principal limitation of any national security posture that relies on preparedness actions immediately prior to and in the early stages of a crisis is that crisis managers will perpetually face the twin risks of overreacting or underreacting. The risks of underreaction are obvious — and are a major reason for U.S. reliance on standing forces and war reserves for conventional sustainability. Overreacting to an ambiguous situation also poses risks — of economic damage if the U.S. "prematurely" mobilizes for a conflict that does not develop and of what may be viewed (after the fact) as "excessive" or wasteful defense expenditures. These opposing risks pose a major challenge to policymakers and planners.

An effective data collection and analysis capability is necessary to help determine which options are available. Based on the inputs of such an information base, the management system must be able to estimate the impact of each option. The ability to generate and review a credible set of alternatives, and to predict the extent and limits of their impact, becomes an important aspect of any Federal emergency management system.

5.3.3 Contracting and Resource Management Actions

The ultimate driver of expanded production is the procurement contract. Mobilization inevitably involves expansion of the defense industrial base to include manufacturers that otherwise would be producing items for sale in the commercial marketplace. Some articles, such as computers and motor vehicles, may be identical or similar to government

requirements and involve closely related facilities, processes, and skills. Other commercial items are produced by processes that could be used for military component production.

The addition of personnel is one initial method of expanding production. Overtime is likely to be used until demand warrants multiple shifts. Subcontracting is the next stage of expanding production for an individual producer. When production rates are relatively low, contractors tend to produce in-house as much of the end items as their facilities and expertise permit. As demand increases, components that are least critical to total performance are subcontracted. Subcontracting might be expanded to the point where the original producer only assembles, tests, and ships the final product. Further increases in production will require additional production facilities for the original producer or additional producers.

During a period of mobilization, many companies will be unable to obtain materials to produce their normal products. A large number of those companies can produce items needed by the mobilization effort. A major problem facing the government is to provide the means of utilizing those companies, which also serves the ancillary function of providing employment and taxes to support mobilization.

In developing a system to harness U.S. industrial capability, mechanisms will be needed not only to control resources, but also to pay for facility expansion and conversion, when necessary. Especially before a conflict begins, prospective contractors may be reluctant to infringe on their existing production and financial positions. They will undertake expansion or conversion on their own only very reluctantly without some assurance that their efforts will be reimbursed.

5.4 GMR AND THE PROGRAM MANAGER

As should be evident from this brief discussion, the GMR concept is of considerable importance to the program manager. The inverse is no less true: the GMR concept cannot be fully institutionalized without the full participation of weapons program managers in the planning process. The fundamental premise of the GMR program is that ***effective planning and preparedness actions, coupled with timely decisionmaking in the early stages of a crisis, can alter the traditional assumptions about the lead times and effectiveness of industrial response activities.*** The GMR program provides a policy basis for effective preparedness planning and a supporting infrastructure to assist the program manager in carrying out his planning and preparedness responsibilities. The active involvement of the program manager is needed to identify capacity, bottlenecks, and remedial measures for defense programs in order for this policy initiative to succeed.

PART II

ISSUES AND ACTIONS

AN INDUSTRIAL PREPAREDNESS PERSPECTIVE FOR ACQUISITON AND PROCUREMENT ISSUES

PREFACE TO PART II

No single DoD Regulation covers all aspects of industrial preparedness and direct reference to the integration of industrial preparedness into the acquisition process is included in only a few of the many DoD directives, instructions, manuals, handbooks, and guides. Regardless of the sparsity of direct reference, there is an abundance of implied reference and it is to these that most of the issues discussed in this part are pointed.

As an aid to the reader the following table is provided to summarize the policy and regulatory foundation for the industrial preparedness perspective presented here.

VA-001594

TITLES

REGULATIONS	ACQUISITION CYCLE OVERVIEW	ACQUISITION MANAGEMENT	ACQUISITION STRATEGY	BUDGETING AND FUNDING	CAPITAL INVESTMENT	COMPOSITION	CONFIGURATION MANAGEMENT	CONTRACTING	DATA MANAGEMENT	ENGINEERING/ TECHNICAL MANAGEMENT	FINANCIAL MANAGEMENT	INTEGRATED LOGISTICS SUPPORT	INTERNATIONAL PROGRAMS	MANUFACTURING AND PRODUCTION	TEST AND EVALUATION
DoDD 2010.6								●					●		
DoDD 4005.1		●													
DoDI 4005.3		●		●	●							●	●		
DoD 4005.3-H		●													
DoD 4005.3-M		●		●	●			●	●				●		
DoDD 4105.62								●							
DoDD 4245.6	●	●	●	●								●		●	
DoD 4245.7-M	●	●	●					●		●		●		●	●
DoDD 4275.5					●										
DoDI 4400.1		●													

VA-001594/A

TITLES

REGULATIONS	ACQUISITION CYCLE OVERVIEW	ACQUISITION MANAGEMENT	ACQUISITION STRATEGY	BUDGETING AND FUNDING	CAPITAL INVESTMENT	COMPOSITION	CONFIGURATION MANAGEMENT	CONTRACTING	DATA MANAGEMENT	ENGINEERING/ TECHNICAL MANAGEMENT	FINANCIAL MANAGEMENT	INTEGRATED LOGISTICS SUPPORT	INTERNATIONAL PROGRAMS	MANUFACTURING AND PRODUCTION	TEST AND EVALUATION
DoDI 4410.3		●											●		
DoDD 5000.1	●	●	●			●								●	
DoDI 5000.2	●	●													
DoDI 5000.38		●													
DoDD 5000.39												●			
DoDD 5000.40												●			
DoDD 5000.45	●		●								●				
DoDI 5160.54		●													
DLAM 4215.1					●										
DLAM 8300.1		●													

VA-001594/B

TITLES

REGULATIONS	ACQUISITION CYCLE OVERVIEW	ACQUISITION MANAGEMENT	ACQUISITION STRATEGY	BUDGETING AND FUNDING	CAPITAL INVESTMENT	COMPOSITION	CONFIGURATION MANAGEMENT	CONTRACTING	DATA MANAGEMENT	ENGINEERING/ TECHNICAL MANAGEMENT	FINANCIAL MANAGEMENT	INTEGRATED LOGISTICS SUPPORT	INTERNATIONAL PROGRAMS	MANUFACTURING AND PRODUCTION	TEST AND EVALUATION
FAR 6.202		•				•		•							
FAR 6.302-3		•				•		•							
FAR Part 45															
DoD FAR Sup. Part 7			•					•	•						
DoD FAR Sup. 8.070						•									
DoD FAR Sup. 15.612								•							
DoD FAR Sup. 17.1								•							
DoD FAR Sup. Part 25													•		

VA-001594/C

TITLES

REGULATIONS	ACQUISITION CYCLE OVERVIEW	ACQUISITION MANAGEMENT	ACQUISITION STRATEGY	BUDGETING AND FUNDING	CAPITAL INVESTMENT	COMPOSITION	CONFIGURATION MANAGEMENT	CONTRACTING	DATA MANAGEMENT	ENGINEERING/ TECHNICAL MANAGEMENT	FINANCIAL MANAGEMENT	INTEGRATED LOGISTICS SUPPORT	INTERNATIONAL PROGRAMS	MANUFACTURING AND PRODUCTION	TEST AND EVALUATION
Defense Production Act of 1950		•		•	•				•				•		
Defense Priorities & Allocation System		•													
OSD Industrial Resource Analysis				•					•				•	•	
DSMC Acquisition Strategy Guide			•												
DSMC Handbook "Establishing Compet. Production Sources"						•									
DSMC DoD Manufacturing Mgmt. Handbook			•	•										•	

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 1.1

VERSION: ORIGINAL

DATE: 15 MARCH 1988

1. TOPIC

Industrial Base Analysis Issues For The Different Phases Of The Acquisition Process

2. TOPIC SUMMARY

- ***Early integration of industrial preparedness into the development of a weapon system is the only effective way to ensure that the end product is mission capable and can also be produced in quantity to satisfy employment and sustainment objectives.***

- ***Different industrial base factors should be evaluated for each phase of the acquisition process.***

3. REFERENCES

—DoDD 5000.1, "Major and Non-major Defense Acquisition Programs"

—DoDI 5000.2, "Defense Acquisition Program Procedures"

—DoDD 5000.45, "Baselining of Selected Major Systems"

—DOD 4245.7-M, "Transition From Development to Production"

4. POINTS OF CONTACT

- Industrial Specialists

5. ABBREVIATIONS

DAE	Defense Acquisition Executive
DCP	Decision Coordinating Paper
ILS	Integrated Logistics Support
MS	Milestone
PEO	Program Executive Officer
PM	Program Manager
SAE	Service Acquisition Executive
SCP	System Concept Paper

6. DEFINITIONS

- ***Requirement*** is the number of units that must be produced in a given time period.

7. POLICY

- It is the policy of the Department of Defense to ensure that acquisition programs are carried out efficiently and effectively to achieve the operational objectives of the U.S. Armed Forces in their support of national policies and objectives (DoDD 5000.1).

- It is the policy of the United States to have a capability to mobilize industry in order to achieve timely and sufficient production of military and essential civilian material needed to prosecute successfully a major military conflict, to lend credibility to national strategic policy, and to respond to emergencies (National Security Decision Directive #47).

8. DISCUSSION

DoDD 5000.1 states that DoD components shall plan for economical rates of production, multi-year procurement (where appropriate), and surge and mobilization requirements. However, this planning cannot be effectively accomplished without an appreciation of the capability and limitations of the industrial base. Beginning with the mission need statement, which establishes the initial program baseline, each step of the acquisition process must look beyond the fielding and maintenance of the program buy to anticipate the potential need to support the employment, sustainment, and possible expansion of the force.

Each of the five phases of the acquisition process requires a tailored industrial base assessment. Initially, the assessment is very general, dealing with broad technology and industrial sector capabilities (actual and potential). As the program office begins to focus on a particular concept and moves to prototype development, the industrial assessment also narrows to evaluate specific facility capabilities. The remainder of this section describes the industrial base analysis requirements for each of the acquisition process phases (see Figure 1.1-1).

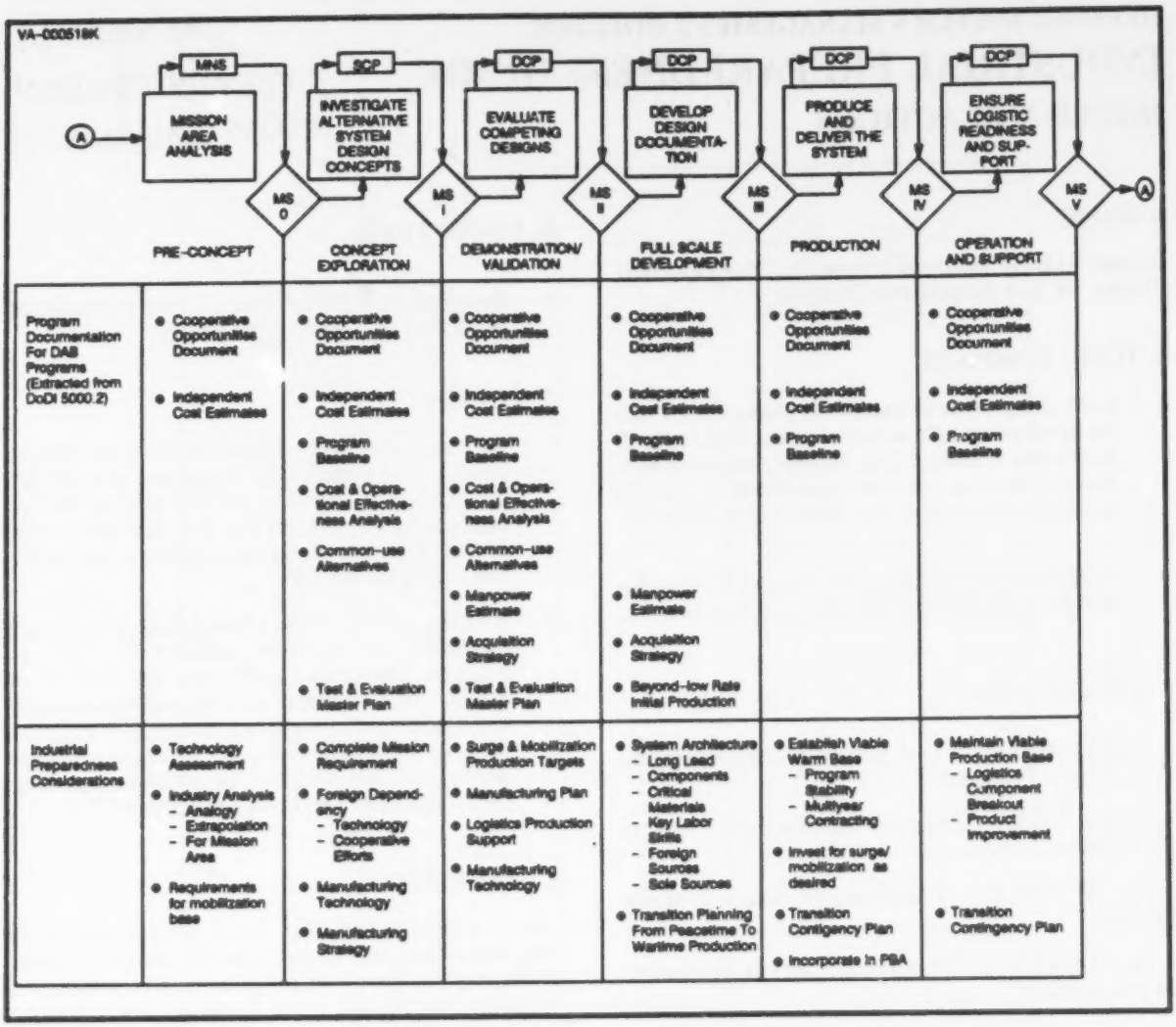


Figure 1.1-1 Industrial Aspects of the Acquisition Phases

The Mission Need Statement (MNS), while very general, provides the baseline for the concept definition phase. As such, this document contains several elements that should be evaluated from an industrial base perspective.

(1) ***Mission and Threat***: This analysis will eventually lead to a statement of system requirements. In most of the acquisition directives and other documents, requirements always refer to performance characteristics, but performance requirements only address a portion of the industrial base concern. A complete description of a weapon systems requirement must also address quantity and time. Quantities should be expressed in terms of the programmed buy and surge/mobilization targets. Each quantity carries with it a corresponding time. The programmed buy is planned over a span of years. Production facilities are expected to meet surge and mobilization targets in a specified number of months.

(2) ***Technology Involved***: Program managers currently evaluate technology risk from the systems engineering perspective. This evaluation focuses on the impact of emerging technologies on parameters of performance, schedule, and cost. In this context, production quantity should also be a key evaluation factor. Some

technologies are feasible only at low rates of production and the ultimate requirement for full-rate production as well as surge and mobilization must be reconsidered. All technologies (both mature and immature) should also be reviewed from the perspective of source. If a particular technology is (or is projected to be) controlled by a foreign source, there is always a possibility that in times of crisis the technology will not be available to the DoD. Technologies that can become foreign dependencies present a type of technological risk that is currently seldom evaluated.

(3) ***Constraints***: Critical materials and required industrial base capabilities are among the potential constraints that could keep any weapon system from meeting its mission requirement. While at this point in the development cycle the mission area proponent cannot conduct a detailed analysis, there are a number of broad issues that could be considered using analogy and extrapolation techniques. Analogy can be used to compare a proposed concept with similar existing programs. As long as mature manufacturing processes are employed, the new program should be expected to encounter similar material and industrial constraints. These constraints can be identified early enough to avoid complications. If the proposed concept is to replace existing system or systems, many of the necessary industrial resources (capital, labor, material) can be transferred to the new program as the old is phased out. If the proposed concept is additive, the current industrial demand must be extrapolated to project a new requirement for resources and the new contraints that might be anticipated. In any event, statements such as "no adverse impact on the industrial base are foreseen" cannot be accepted without sufficient supporting analysis to demonstrate that a comprehensive assessment was accomplished.

(4) ***Acquisition Strategy***: Two elements of the acquisition strategy are competition and the contracting approach. An implied issue in both of these areas is that of the mobilization base. The decision to use full and open competition rather than a more restrictive alternative cannot properly be made without a prior decision regarding the domestic production capability needed to support program requirements. Mobilization issues to consider in developing the acquisition strategy are expanded in Section 3.1 of this guide.

The Concept Exploration/Definition Phase provides an opportunity for the development of innovative solutions to satisfy the mission need and program objectives. However, no solution can provide a feasible system concept without considering the capability of the industrial base to support the mission requirement. This section describes the industrial assessment that should be incorporated into the Milestone I System Concept Paper (SCP) and Acquisition Decision Memorandum.

(1) ***Mission Requirements***: A program manager should not consider a concept definition that is based on less than fully articulated mission requirements. From the industrial base perspective, mission requirements consist of:

- Performance requirements
- Fielding requirements
- Employment requirements.

Performance requirements dictate the sophistication of manufacturing processes, the essential materials, and the nature of the testing that is needed to make a single production unit mission capable. Fielding requirements establish the amount of facilitization needed to produce the program buy and to satisfy peacetime losses. Employment requirements provide the best estimate of the production quantities needed to offset the projected threat. It is significant that the SCP format only addresses the performance requirements, but a concept should not be selected just because a single unit can meet the performance specifications; producibility of a concept must also be evaluated. If it cannot be manufactured in the quantities and times needed to meet operational contingencies, then the best design cannot satisfy the mission need.

(2) ***Cooperative Opportunities***: The evaluation of this subject area should include an assessment of the production risk associated with the use of foreign technologies, production processes, and products. If the item is a surge or mobilization candidate, the assessment must include recommendations to ensure that sufficient production capacity can be provided for anticipated contingencies.

(3) ***Technological Risk***: Two categories of technological risk should be addressed during concept development. The first, as stated by DoDI 5000.2, is risk that can be reduced by research and development, namely design risk. Design risk, relates directly to the ability of a concept to meet the performance requirements. However, a complete technological risk assessment

must also address production risk. Production risk can be reduced through manufacturing technology. Early integration of manufacturing technology into the concept will serve to improve producibility at either a peacetime, surge, or mobilization rate.

(4) ***Acquisition Strategy***: The acquisition strategy is the cornerstone of program execution. It must include a viable manufacturing strategy which must, in turn, be supported by a comprehensive industrial base plan that covers the transition from development to production and the transition from peacetime production to crisis production.

The Concept Demonstration/Validation Phase provides an opportunity for the program office to resolve the risks associated with each selected alternative concept. For the systems engineer, that equates to design risk. For the manufacturing proponent, the issue is production risk. For most program engineers, production risk includes such issues as packaging, manufacturing, lead times, and material availability. DoD 4245.7-M, "Transition from Development to Production," suggests that one way to reduce production risk is to begin development of the manufacturing plan during concept validation. A key element of the manufacturing plan is surge and mobilization planning. This section expands the concept of risk analysis to cover the transition from full-rate production to mobilization production.

(1) ***Program Baseline***: DoDI 5000.2 states that "the program baseline is a formal agreement between the PM, PEO, SAE, and DAE that briefly summarizes factors critical to the success of a program, such as functional specifications, cost, and schedule objectives and requirements, against which the program will subsequently be evaluated." Because this document establishes the program manager's performance objectives and because it is updated at each milestone review, it is a crucial element in the process of integrating industrial preparedness. When the PM prepares the baseline document, he should ensure that DoD's policy for responsive support of national policy and operational objectives is addressed. As discussed earlier, the operational requirements should be a part of the background assessment leading to a Milestone 0 decision. At the very least, a weapon system concept should acknowledge that the system has a warfighting mission which would influence the acquisition and manufacturing strategies developed for the Milestone I review. As these strategies are refined during the Demonstration/Validation phase, the program manager should identify the surge and mobilization production goals and incorporate these capacity factors into the development baseline.

(2) ***The Manufacturing Plan***: During this phase the manufacturing strategy is refined to become a preliminary manufacturing plan. This presents an excellent opportunity to develop the transition plan for surge and mobilization production rates. While the contractor is determining the required sequence of operations, the resource requirements, and organization to deliver the programmed production buy, he can also most economically determine alternate approaches for implementing the transition in such a way that time and cost can be minimized. The PM should reject or modify any transition plan that contains unacceptable manufacturing risk.

(3) ***Integrated Logistics Support (ILS)***: The development of peacetime and wartime readiness and sustainability objectives should be completed by Milestone I. As these objectives are evaluated and refined during the demonstration/validation phase, the ILS manager should determine the critical spares and repair parts needed to keep the forces fighting. In the early stages of combat, repair of battle damaged systems may be the key to force sustainment until the production base can meet the demand for new systems. However, the diversion of system component production from the prime contractor's facility to the logistics pipeline, at the least, may create confusion and, at the most, may not meet either the maintenance or the production objective. The Integrated Logistics Support Plan must be integrated with the manufacturing plan to address the key questions:

- Can industry provide critical components and repair parts in sufficient time?
- How much industrial base is needed to support emergency production of end-items and supplies for maintenance and repair facilities?
- What is the proper balance between inventory and production capacity?

The Full Scale Development Phase is the first time in the acquisition cycle that industrial preparedness planning can be conducted in the true sense of the term. In the previous phases, emphasis was placed on ensuring that mobilization considerations were identified and that decisionmakers formally acknowledged industrial base issues. Now, as the contractor completes the detailed design and design

tests, the PM can address more specific industrial base uncertainties. For example, the project work breakdown structure can be refined to become a system market structure. Using this, the PM can begin to identify long lead time components, critical materials, key labor skills, and facility and equipment shortfalls. He can evaluate the capabilities of key subcontractors and vendors to support the prime contractor at all levels of production. Additionally, he can identify and take action to guard against long term detrimental impacts of single, sole, and foreign source manufacturers.

The Production Phase has two primary objectives. The first is to produce an effective, fully supported system at an optimal cost. The second is to establish a viable warm production base that can most expeditiously accelerate production to meet wartime demands. These two objectives must be pursued simultaneously throughout the phase.

(1) ***The Procurement Strategy***: The initial procurement strategy defines the manner in which the program buy is to be filled. It describes the annual procurement quantities, the number of years that procurement is anticipated, and the number of prime contractors that will make up the warm base. Once the warm base is established, the PM is responsible for ensuring that subsequent procurement decisions will not erode either the capability of the current producers or the potential for future production acceleration. This responsibility carries with it a requirement to understand the subcontractor/vendor structure that supports the prime contractors. Some procurement decisions, having marginal impact on the primes, may result in major degradations at the lower tiers.

(2) ***The Make or Buy Decision***: The make or buy program can significantly benefit the "mobilizability" of a system. The peacetime decisions to make or buy are primarily cost related. During wartime, however, production output becomes a key concern. The ability to quickly accelerate output can be improved if consideration is given to a mobilization make/buy plan which identifies those production responsibilities that can be transferred to non-defense producers.

(3) ***Multiyear Procurement***: Multiyear procurement enhances program stability, which has a direct impact on the "health" of the industrial base. Decisions to use multiyear procurement cannot be justified solely on achieving cost savings thresholds, but should also consider issues such as subcontractor stability, international competitiveness, and industrial preparedness.

(4) ***Phased Acquisition***: Most mobilization planning presumes that weapon systems are fully fielded prior to the onset of hostilities. This assumption is often unfounded since there is no guarantee that an enemy will wait until deliveries are in place. Every system acquisition program that supports a warfighting mission need should have a contingency plan for accelerated production to fill the force as well as sustain it. To the degree that the production phase is extended by phased acquisition, a viable contingency plan is even more essential.

The Operational Readiness and Support Phase shifts the focus of management to logistics support. During this phase, decisions are made regarding such issues as logistics component breakout and product improvement which could lead to deterioration in production capability if industrial considerations are not evaluated. Further complicating this phase is the transfer of responsibility for some programs. The Air Force transfers programs from the Systems Command to the Logistics Command. The Army has the cognizant Major Subordinate Command assume the management function. This institutional transfer can result in unconscious discontinuity in industrial preparedness.

(1) ***Logistics Component Breakout***: Some past decisions to separately compete the procurement of repair parts have had a harmful impact on industrial responsiveness. When damage has occurred, it was due to a near-term interest in cost saving. While lower procurement costs may be realized, PMs must also address requirements to establish and maintain planned producers and the potential for introducing foreign dependence vulnerabilities.

(2) ***Product Improvements***: As a weapon system matures, product improvements may be incorporated to expand the useful life of the system and take advantage of new technology. While product improvements may increase operational performance, they may decrease producibility at the higher mobilization rates. Much of any adverse impact to mobilization can be averted if product improvement plans and designs are accompanied by parallel plans to invest in adequate manufacturing technology and capital improvements.

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 1.2

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1. TOPIC

The Program Manager's baseline.

2. TOPIC SUMMARY

- ***The program manager's baseline should contain industrial preparedness goals and thresholds***
- ***The program manager should be provided the resources needed to adequately conduct industrial preparedness activities.***

3. REFERENCES

—DoDD 5000.1, "Major and Non-Major Defense Acquisition Programs"

—DoDD 5000.45, "Baselining of Selected Major Systems"

—DoDI 5000.2, "Defense Acquisition Program Procedures"

4. POINTS OF CONTACT

- The OSD Director of Major Systems Acquisition
- The OSD Director of Industrial Resources

5. ABBREVIATIONS

ADM	Acquisition Decision Memorandum
DAB	Defense Acquisition Board
DAE	Defense Acquisition Executive
FSD	Full-Scale Development
MNS	Mission Need Statement
PEO	Program Executive Officer
PM	Program Manager
SAE	Service Acquisition Executive
SCP	System Concept Paper
USD(A)	Under Secretary of Defense for Acquisition

6. DEFINITIONS

- ***Annex B*** is an attachment to the System Concept Paper that provides program goals and thresholds
- The ***Defense Acquisition Executive (DAE)*** is the principal advisor to the Secretary of Defense on all matters pertaining to the Department of Defense Acquisition System. The Under Secretary of Defense for Acquisition (USD(A)) is the DAE and the Defense Procurement Executive.
- The ***program baseline*** is a formal agreement between a PM and a PEO, SAE, and the DAE that briefly summarizes factors critical to the success of a program such as functional specifications, cost, and schedule objectives and requirements, against which the program will subsequently be evaluated.
- The ***Service Acquisition Executive (SAE)*** is the senior acquisition executive within each Military Department, designated by the Component Head, responsible for administering acquisition programs in accordance with established DoD policies and guidelines.
- A ***System Concept Paper*** (SCP) summarizes the results of the concept exploration/definition phase.
- ***Program Executive Officers (PEO)*** are the officials responsible for administering a defined number of major and/or non-major acquisition programs who report to and receive direction from an SAE.
- ***Program Managers (PM)*** are the officials responsible for managing a specific acquisition program who report to and receive direction from either a PEO or an SAE.
- ***Acquisition Decision Memorandum (ADM)*** is a memorandum to a Component Head signed by the DAE that documents the decisions of the Secretary of Defense regarding a DAB program.

7. POLICY

- To enhance program stability, DoD components will establish program baselines and assign to PMs the authority and resources required to achieve these baselines. (DoDD 5000.1)

8. DISCUSSION

DoDI 5000.2 states that:

- The MNS shall serve as the program baseline at Milestone 0 for the concept exploration/definition phase.
- Annex B of the SCP shall be attached to the ADM and becomes the program baseline at Milestone I for the concept demonstration/validation phase.
- A development baseline is established at Milestone II and a production baseline is established at Milestone III.
- The production baseline shall be updated to serve as the baseline for Milestones IV and V.

Because the program baseline establishes the program manager's performance objectives for each phase of the acquisition process, it is a crucial element in the process of integrating industrial preparedness. Placing industrial preparedness goals and thresholds in the baseline achieves the following benefits:

- Surge and mobilization production targets are clearly defined for the program manager
- The program manager can explicitly document the required planning and investment resources
- The SAE and DAE will commit to the accomplishment of the industrial preparedness goals
- Industrial preparedness can be linked to the programming and budgeting process.

The remainder of this section proposes baseline augmentations for each of the program milestones.

Milestone 0: The mission need statement is the Milestone 0 program baseline. As such, this document must state whether or not there is a surge or mobilization mission. Without that determination, the acquisition community cannot begin to address industrial preparedness issues. If a system has a surge or mobilization mission, production targets should be sufficiently defined to allow for the establishment of first-order industrial preparedness goals and thresholds.

Each mission need statement is required to identify the applicable OSD(A) mission area. Table 1.2-1 provides an extract of the current 120 mission areas.* A given mission area may contain acquisition programs that are in development, in production, or our of production (historical). Weapon system modifications may also be listed as a mission area program element.

Case exercise no. 1 of the DSMC case study series provides the students with hypothetical mission area decomposition displayed in Table 1.2-2.§ While this breakdown of mission areas is not currently being used by DoD, it is suggested that the format could provide a template for establishing the initial industrial preparedness goals and thresholds. In order to prepare the template, three issues need to be resolved.

Issue #1: Is the mission area element mission-oriented or level-of-effort oriented? In most circumstances, a mission area contains systems that either are mission oriented or are considered to be level-of-effort. Mission-oriented weapons have wartime requirements that are based upon the assessment of enemy capability and are expressed as a known or estimated quantity of total targets to be destroyed. Level-of-effort oriented items have wartime requirements based on such factors as equipment and personnel density and time and rate of use for some systems. Wartime requirements sometimes are derived from a combination of mission and level-of-effort calculations.

Issue #2: Have mobilization goals been established for the mature systems in a mission area? If a weapon system proponent has not determined a mobilization production requirement for those systems currently in production, it is unlikely that a requirement can readily be developed for a new system. On the other hand, if requirements have been developed, the process of analogy can be used to project production targets for new systems.

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*OUSD(A) Program element assignment directory with Deputy, mission area, and Service listings as of 10 may, 1988

§System X, Case Exercise No. 1, Program Initiation, Student Guide, Defense Systems Management College, January 1979, pgs, ISG-C-2, 3.

TABLE 1.2-1
EXTRACT OF OUSD(A) MISSION AREA TITLES

100 STRATEGIC WARFARE

110 Strategic Offensive
- 111 Land-Based Strike
- 112 Sea-Based Strike
- 113 Airborne Strike

120 Strategic Defensive
- 121 Ballistic Missile Defense
- 122 Strategic Air Defense
- 123 Space Defense

140 Strategic Support

200 TACTICAL WARFARE

210 Land Warfare Forces
- 211 Direct Fire Combat
- 212 Indirect Fire Support
- 213 Land Combat Engineer Support
- 214 Ground Based Antiair and Tactical Missile Defense
- 215 Land Warfare Support

220 Air Warfare (Incl. Marines)
- 221 Counter Air
- 223 Close Air Support and interdiction
- 224 Defense Suppression
- 225 Air Warfare Support
- 227 Air Warfare Surveillance and Reconnaissance

230 Naval Warfare
- 231 Anti Air Warfare
- 232 Anti Surface Warfare Amphibious, Strike, and
- 233 Anti Submarine Warfare
- 234 Mine Warfare
- 235 Naval Warfare Support
- 237 Naval Warfare Surveillance and Reconnaissance

240 Theater Nuclear Warfare
- 241 Battlefield Theater Nuclear Warfare
- 242 Theater Wide Nuclear Warfare

260 Mobility
- 261 Intertheater Airlift
- 262 Intertheater Sealift
- 263 Prepositioning
- 265 Intratheater Airlift
- 266 Intratheater Surface Lift
- 267 Air Refueling

300 INTELLIGENCE AND COMMUNICATIONS, COMMAND, CONTROL (C^3I) PROGRAMS

307 Special Operations Forces
310 Centrally Managed Intelligence
320 Tactical Intelligence and Related Activities
330 Strategic C^3 Programs
340 Theater and Tactical Programs
350 Navigation/Warfare Command and Control
360 Suport and Base Communications
370 Electronic Combat

400 DEFENSE-WIDE MISSION SUPPORT

410 Space Launch Orbital Support
420 Global Military Environmental Support
430 Non-System Training Devices
440 Technical Integration/Studies and Analysis
450 Test and Evaluation Support
460 International Cooperative RDT&E
470 Management Support
480 RDT&E Facilities/Management
490 Production Base Support

TABLE 1.2–2

DSMC DECOMPOSITION OF MISSION AREA 113

MISSION AREA 113 (AIRBORNE STRIKE)		
113.1		Aircraft Delivery Systems
	113.11	FB–111
	113.12	B–1
	113.13	B–52 w/SRAM
113.2		Weapons
	113.21	Short Range Attack Missile (SRAM)
	113.22	Strategic Bomber Enhancement (B–52)
	113.23	Strategic Attack Weapons System
113.3		Bomber Subsystems
	113.31	Electronic Agile Radar System (EARS)
	113.32	Protective Systems
	113.33	Strategic Bomber Enhancement
	113.34	Electronic Warfare Technology

Issue #3: How much domestic production capability is needed to ensure that the national security objectives can be met? Before cooperative opportunities can be explored, leading edge technologies proposed, or acquisition strategies developed, DoD should first decide on the amount of production capacity that must come from the mobilization base. While it is possible to envision instances where the extremes of 100 percent or 0 percent are the answer, in most cases the likely baseline is "at least one domestic producer for every piece–part of a system." From this baseline, waivers and adjustments can be permitted to compensate for the specific peculiarities of individual weapons.

Milestone I: Annex B of the System Concept Paper is the Milestone I program baseline which establishes the program goals and thresholds for the concept demonstration/validation phase. This annex together with the system concept paper should describe the selected alternatives in terms of their ability to meet the industrial preparedness thresholds established in the mission need statement.

At Table 1.2–3 is an extract of Annex B which shows the current industrial base goals and thresholds. As presented, these factors are subject to wide interpretation, moreover, they do not appear to give a full perspective on industrial base issues. Yet, they are not explained or defined further.

TABLE 1.2–3

EXTRACT OF ANNEX B: PROGRAM GOALS AND THRESHOLDS

INDUSTRIAL BASE
• Leadtime to produce
• Production buildup rate
• Production Rate
• Surge Rate

A suggested alternative to the Annex B industrial base factors is provided in Table 1.2–4. Lead time to produce is the time between item ordering and final delivery. Conceivably, the peacetime lead time would not satisfy the lead time requirement in a surge or mobilization environment. Nevertheless, by establishing lead time goals under the three environments, the contractor can provide alternatives to designs and manufacturing strategies.

Production rate goals are dependent on the production environment. The peacetime production rate is normally expressed in terms of units per year and is determined by the size and duration of the programmed buy. Surge and mobilization rates, on the other hand, are expressed in terms of units per month or months. If the system is mission–oriented, the rate may be a cumulative requirement such as "be able to produce 10,000 within 18 months

TABLE 1.2-4

ALTERNATIVE INDUSTRIAL BASE PROGRAM GOALS AND THRESHOLDS

INDUSTRIAL BASE
PEACETIME
Leadtime to produce
Production rate
SURGE
Leadtime to produce
Production rate
MOBILIZATION
Leadtime to produce
Production rate
DOMESTIC PRODUCTION CAPABILITY

of a decision to do so." If the system is level-of-effort, the target will be a monthly sustaining rate such as "be able to sustain production at 300 units per month within 12 months of a decision to do so."

Domestic production capability is an important factor that is not currently considered during system acquisition. If the system has a mobilization mission, there will probably be a need for some domestic production capability. At the Milestone I point, the goal should be "at least one domestic producer for every piece-part of the system." With this in mind, system designers will have to address products and processes that could become foreign dependencies. In some cases, actions to achieve this threshold may lead to threshold breaches in other areas (especially cost). When this occurs, the program manager would be expected to elevate the issues and risks to the SAE and DAE for a decision.

Milestone II: The current format for the development baseline calls for a three-part program description that details performance requirements, milestone schedule, and unit cost projections. As with the previous baselines, no reference is made to industrial preparedness issues. To correct this deficiency, a fourth part, titled "industrial base," could be added which carries forward the factors identified for Milestone I. During the Dem/Val phase, the preparedness goals should have also been validated by the operations and industrial preparedness communities. The contractors, working with these organizations should conduct force effectiveness evaluations in order to refine the industrial base targets for Milestone II.

Using the refined industrial base goals and thresholds, the contractors selected for FSD should be contractually required to provide a plan for transitioning from peacetime production to surge and/or mobilization production. The transition plan should contain, as a minimum, a manufacturing plan that shows how the peacetime facilities would be modified and an investment strategy that costs the additional facilities, equipment, and materials in increments that can be supported in the PPBS. The cost for this plan should be identified and funded as a separate development cost.

Milestone III: The production baseline contains a full set of demonstrated system performance parameters, a validated estimate of the remaining program cost and the average unit cost, and a production delivery schedule. With the addition of the industrial preparedness baseline factors and the investment strategy developed during FSD, the program manager can include industrial capacity investments in Annexes C and D to the Decision Coordinating Paper. By clearly breaking out the cost of industrial preparedness from that of achieving the peacetime buy, the program manager can ensure that decisions to delay surge or mobilization investment will not adversely impact the remainder of the program.

Milestones IV and V: The Milestone IV and V baselines are updated Milestone III baselines. While some modification of the thresholds may be warranted, the primary difference will be in the investment strategy. Changes in peacetime production may have significant impact on the nature of industrial investments. This is especially true if most of the program buy is completed so that continuous production may not be needed. If the production capability has been discontinued, some investment in maintenance may be needed to preserve critical capacity.

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 2.1

VERSION: ORIGINAL

DATE: 1 JUNE 1988

1. TOPIC

Getting the most out of Government Industrial Base Specialists.

2. TOPIC SUMMARY

- ***The industrial specialist is a resource available to the program manager in fulfilling industrial preparedness planning and assessments***
- ***The Services may have to reorient the roles and functions of industrial specialists to allow them to support the program manager***
- ***Unless the program manager structures his organization with an industrial preparedness function, key industrial issues will not be considered during decisionmaking.***

3. REFERENCES

—DoDD 4005.1, "Industrial Preparedness Program"

—DoDI 4005.3, "Industrial Preparedness Planning"

—DoD 4005.3–M, "Industrial Preparedness Planning Manual"

—DoDD 4245.6, "Defense Production Management"

—DoDI 5000.38, "Production Readiness Reviews"

4. POINTS OF CONTACT

- Acquisition Activities (see Appendix A)

5. ABBREVIATIONS

IP	..... Industrial Preparedness
IPP	..... Industrial Preparedness Planning

6. DEFINITIONS

- An ***acquisition activity*** is an organizational element of a military department or agency, or of a participating civilian agency, which has acquisition responsibility and therefore preparedness planning responsibility for one or more planning items.

7. POLICY

- Planning for surge/mobilization requirements for new major systems will be included in the systems acquisition plan by the program/project and item managers, coordinated with IPP planners, and reported in accordance with DoD Instruction 5000.2. (DoDI 4005.3)
- Detailed planning for other than new major systems will be accomplished by DoD industrial preparedness planners (DoDI 4005.3).

8. DISCUSSION

Each acquisition activity has a staff of industrial specialists who are continually involved with industrial preparedness issues. The items being planned for surge and mobilization production are derived from the Service's Critical Items List, which by intent contains only mature (Post Milestone III) items. Because of this focus, the industrial specialist spends the majority of his time trying to get visibility into an established subcontractor/vendor base to identify production bottlenecks at all levels of production and to develop remedies for the production constraints once they are identified. Too frequently, the options for acquiring mobilization capacity are developed so late in a weapon system's acquisition process that they are ineffective and unaffordable.

In 1985, when the industrial preparedness planning manual (DoD 4005.3–M) was updated, the authors recognized the unresolvable problem of designing, facilitizing, and producing against a peacetime requirement and, once production has begun, developing a plan to expand that production process by 10, 20, or 30 fold. They established industrial preparedness planning program procedures which state:

> To ensure the timely delivery of sufficient quantities of products required for modernization, readiness, sustainability, and mobilization of the combat forces, IP Planning shall be considered early in the acquisition process, in accordance with DoD Directive 4245.6, and must be considered by the acquisition activity before full-scale development begins. Similarly, IP Planning shall be a factor in the post-production support package

developed for mature weapon systems and equipment items with impending production line closeouts.

Yet, since the manual was published, there has been no change in operating procedures. Program managers are still designing weapon systems and production facilities as if there were no possibility that wartime production rates could be required. Industrial preparedness planners are continuing to attempt to undo the detrimental (from the IPP perspective) decisions made by the acquisition community.

There are two reasons that industrial preparedness and system acquisition are not better integrated:

- The inclusion of industrial preparedness into acquisition decisionmaking must be pulled by the acquisition community, not pushed by the IP planners
- IP Planners must learn how to contribute their perspective in the pre-Milestone II acquisition phases.

What then can the program manager do? First, he can address the need for an industrial preparedness specialist on his staff as soon as the program office is established. This need could be met by allocating a billet for that purpose but more than likely the most expedient means is to contact the appropriate IPP office and ask for assistance.

Once the industrial specialist becomes an active part of the program office, the manager must ensure that the specialist is included in all program evaluations and reviews. If he is not included directly in the decisionmaking process, his value to the team will be reduced. As an active team member, the industrial specialist fills the role of industrial base advocate. While his opinion may not necessarily be the final word, it may provide a counter perspective to those whose recommendations may prove detrimental to the long term viability of the industrial base.

APPENDIX A

ACQUISITION ACTIVITIES

DEPARTMENT OF THE ARMY

Code No.	Acquisition Activity
01	Commander U.S. Army Tank and Automotive Command Procurement & Production Directorate Production Division Industrial Preparedness Branch ATTN: AMSTA-ICC Warren, MI 48397-5000 Commercial: 313 574-7011 Autovon: 786-7011
02	Commander U.S. Army Troop Support Command Directorate for Procurement & Production ATTN: AMSTR-PTA 4300 Goodfellow Boulevard St. Louis, MO 63120-1798 Commercial: 314 263-3417 Autovon: 693-2821
03	Commander U.S. Army Missile Command Systems Engineering & Production Directorate ATTN: AMSMI-RD-SE-10 Redstone Arsenal, AL 35898-5280 Commercial: 205 876-5098 Autovon: 746-5098
04	Commander U.S. Army Aviation Systems Command Directorate for Procurement & Production ATTN: AMSAV-EMC 4300 Goodfellow Boulevard St. Louis, MO 63120-1798 Commercial: 314 263-3080 Autovon: 693-3080
05	Commander U.S. Army Armament, Munitions & Chemical Command Industrial Readiness Directorate ATTN: AMSMC-IRB Rock Island, IL 61299-6000 Commercial: 309 782-4224 Autovon: 793-4588
06	Commander U.S. Army Armament, Munitions & Chemical Command Industrial Readiness Directorate ATTN: AMSMC-IRW (Weapons) Rock Island, IL 61299 Commercial: 309 794-5048 Autovon: 793-5048
07	Commander U.S. Army Communications-Electronics Command Industrial Preparedness Branch: P&MT Directorate ATTN: AMSEL-ED-PI Fort Monmouth, NJ 07703-5000 Commercial: 201 532-4995 Autovon: 992-4077
14	Commander Watervliet Arsenal ATTN: SMCWV-PPI Watervliet, NY 12189-4050 Commercial: 518 266-4251 Autovon: 974-4251
16	Commander ISA/LABCOM Directorate of Contracting ATTN: SLCIS-C-C 2800 Powder Mill Road Adelphi, MD 20783 Commercial: 202 394-1001 Autovon: 202-1001

DEPARTMENT OF THE NAVY

Code No.	Acquisition Activity
	NAVAL FACILITIES ENGINEERING COMMAND
20	Commander Naval Facilities Engineering Command Code 064 200 Stovall Street Alexandria, VA 22332-2300 Commercial: 202 325-8565 Autovon: 221-8565
21	Commanding Officer Naval Construction Battalion Center Code 15 Port Hueneme, CA 93043-5000 Commercial: 805 982-3381 Autovon: 360-3381
	SPACE AND NAVAL WARFARE SYSTEMS COMMAND
22	Commander Naval Electronic Systems Command Code 003-12 Washington, DC 20363-5100 Commercial: 202-692-7491 Autovon: 222-7491
	NAVAL SUPPLY SYSTEMS COMMAND
23	Commander Naval Supply Systems Command Code 50 Washington, DC 20376-5000 Commercial: 202 692-5136 Autovon: 222-5136
24	Commanding Officer Navy Ships Parts Control Center Code 041 P.O. Box 2020 Mechanicsburg, PA 17055-0788 Commercial: 717 790-7486 Autovon: 430-7486
25	Commander Officer Naval Aviation Supply Office Code WPM1-022 700 Robbins Avenue Philadelphia, PA 19111-5098 Commercial: 215 697-5737 Autovon: 442-5737
	NAVAL AIR SYSTEMS COMMAND
30	Commander Naval Air Systems Command Code AIR 5141 Washington, DC 20361-5140 Commercial: 202 692-0875 Autovon: 222-0875
33	Commander Officer Naval Avionics Center Code NAC-003 6000 E. 21st Street Indianapolis, IN 46219-2189 Commercial: 317 353-7003 Autovon: 369-7003
	JOINT CRUISE MISSILE PROJECT
34	Director Joint Cruise Missile Project Code JCMP-51214 Washington, DC 20363-5140 Commercial: 202 692-2960 Autovon: 222-2960
	NAVAL SEA SYSTEMS COMMAND
35	Commander Naval Sea Systems Command Industrial Planning Division Code 907 Washington, DC 20362-5101 Commercial: 202 746-3111 Autovon: 286-3111
38	Commanding Officer Naval Ordnance Station Code 051B Indian Head, MD 20640-5000 Commercial: 301 743-4575 Autovon: 364-4575

Code No.	Acquisition Activity	Code No.	Acquisition Activity
	U.S. MARINE CORPS		
40	Commander of the Marine Corps Code LPA Washington, DC 20380-0001 Commercial: 202 694-1262 Autovon: 224-1262		
42	Commanding General Marine Corps Logistics Base, Albany, GA Contracts Division Code 907 P.O. Drawer 43018 Albany, GA 31704-5000 Commercial: 912 439-6741 Autovon: 460-6741		

DEPARTMENT OF THE AIR FORCE

Code No.	Acquisition Activity
	AIR FORCE LOGISTICS COMMAND
50	Ogden Air Logistics Center (Ogden ALC) Directorate of Contracting & Manufacturing (PMD) Hill AFB, UT 84406-5990 Commercial: 801 777-6400 Autovon: 458-6400
51	Sacramento Air Logistics Center (Sacramento ALC) Directorate of Contracting & Manufacturing (PMD) McClellan, AFB, CA 95652-5990 Commercial: 916 643-4252 Autovon: 633-4252
52	San Antonio Air Logistics Center (San Antonio ALC) Directorate of Contracting & Manufacturing (PMD) Kelly AFB, TX 78241-5990 Commercial: 512 925-7066 Autovon: 945-7066
53	Warner Robins Air Logistics Center (Warner Robins ALC) Directorate of Contracting & Manufacturing (PMD) Warner Robins AFB, GA 31098-5990 Commercial: 912 926-6034 Autovon: 468-6034
54	Oklahoma City Air Logistics Center (Oklahoma City ALC) Directorate of Contracting & Manufacturing (PMD) Tinker AFB, OK 73145-5990 Commercial: 405 734-5341 Autovon: 735-5341

Code No.	Acquisition Activity
	AIR FORCE SYSTEMS COMMAND
60	Aeronautical Systems Div. (ASD) Deputy for Contracting & Manufacturing (PM) Manufacturing Management Division (PMDP) Wright-Patterson AFB, OH 45433 Commercial: 513 255-5541/6684 Autovon: 785-5541/6684
61	Headquarters Space Division (SD) Deputy for Contracting & Manufacturing (PM) Directorate of Manufacturing & Quality Assurance (PMG) LAAFS, P.O. Box 92960 Worldway Postal Center Los Angeles, CA 90009 Commercial: 213 643-0833 Autovon: 833-0833
62	Armament Development & Test Center (AD) Directorate of Manufacturing & Quality Assurance (PMD) Eglin AFB, FL 32542 Commercial: 904 882-3880 Autovon: 872-3880
63	DAF/Air Force Systems Command Electronic Systems Division (ESD) Directorate of Manufacturing (TOM) Hanscom Air Force Base, MA 01731 Commercial: 617 861-3561 Autovon: 478-3561
64	Headquarters Ballistics Missile Office (BMO) Directorate of Contracting & Manufacturing (MNC) Manufacturing Division (MNCP) Norton Air Force Base, CA 92409 Commercial: 714 382-6866 Autovon: 876-6866

DEFENSE LOGISTICS AGENCY

Code No.	Acquisition Activity
70	Headquarters Defense Logistics Agency Contracting Directorate Production Division Production Policy Branch ATTN: DLA-PRS Cameron Station Alexandria, VA 22304-6100 Commercial: 202 274-6451 Autovon: 284-6451
72	Defense Construction Supply Center Directorate of Contracting & Production Production Division Production Management & Preparedness Branch ATTN: DCSC-PPP Columbus, OH 43216-5000 Commercial: 614 238-2629 Autovon: 850-2629
74	Defense Electronics Supply Center Directorate of Contracting & Production Production Division Industrial Preparedness Planning Branch ATTN: DESC-PEP 1507 Wilmington Pike Dayton, OH 45444-5195 Commercial: 513 296-5325 Autovon: 986-5325
76	Defense Fuel Supply Center Directorate of Contracting & Production ATTN: DFSC-P Cameron Station Alexandria, VA 22304-6100 Commercial: 202 274-7431 Autovon: 284-7431
80	Defense General Supply Center Directorate of Contracting & Production Production Division Industrial Planning Branch ATTN: DGSC-PEL Richmond, VA 23297-5000 Commercial: 804 275-3280 Autovon: 695-3280
82	Defense Industrial Supply Center Directorate of Contracting & Production Production Division Production Branch Industrial Preparedness Program Section ATTN: DISC-PIAB/1 700 Robbins Avenue Philadelphia, PA 19111-5096 Commercial: 215 697-2725 Autovon: 442-2725
84	Defense Personnel Support Center (1) Directorate of Clothing & Textiles Contracting & Production Division Production Branch, DPSC-TPT Commercial: 215 952-3161 Autovon: 444-3161 (2) Directorate of Subsistence Contracting & Production Division, DPSC-SPPR Commercial: 215 952-4477 Autovon: 444-4477 (3) Directorate of Medical Materiel Contracting & Production Division, DPSC-AP Commercial: 215 952-2888 Autovon: 444-2888 2800 S. 20th Street Philadelphia, PA 19101-8419

Code No.	Acquisition Activity	Code No.	Acquisition Activity
	DEPARTMENT OF TRANSPORTATION		**GENERAL SERVICES ADMINISTRATION**
90	U.S. Department of Transportation Maritime Administration 400 7th Street S.W. Washington, DC 20590 Commercial: 202 382-6100 No Autovon	95	General Services Administration Federal Supply Service Procurement Operations Support Division (FCO) Room 619 Crystal Mall Building 4 Arlington, VA 20406 Commercial: 703 557-0514 No Autovon

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 2.2

VERSION: ORIGINAL

DATE: 1 JUNE 1988

1. TOPIC

Using the Armed Services Production Planning Officer (ASPPO)

2. TOPIC SUMMARY

- ***ASPPO records are the only complete record of the total planned military production assigned to individual plants and the allocated and open capacity of those plants.***
- ***ASPPOs can, upon request, provide assistance in locating and validating production sources.***
- ***The ASPPO is a manpower resource that the program manager can use for production assessment and data collection.***

3. REFERENCES

—DoD 4005.3–M "Defense Industrial Preparedness Planning Manual"

—DoD 4005.3–H "Register of Planned Emergency Producers"

—DLAM 8300.1 "Production Manual for Contract Administration Services"

—FAR 6.302–3, "Industrial Mobilization; or Engineering Development, or Research Capability"

—FAR 19.5, "Set–Asides for Small Business"

—DoD FAR Supplement 8.070, "Industrial Preparedness Production Planning"

4. POINTS OF CONTACT

- ASPPOs (See Appendix A)

5. ABBREVIATIONS

ASPPO ...	Armed Services Production Planning Officer
DCASMA	Defense Contract Administration Services Management Area
DCASR ..	Defense Contract Administration Services Region
DID	Data Item Description
DPAS	Defense Priorities and Allocation System
IPP	Industrial Preparedness Planing
RPEP	Register of Planned Emergency Producers

6. DEFINITIONS

- The ***Armed Services Production Planning Officer (ASPPO)*** is the Government designee responsible for performing industrial preparedness planning in plants under his or her cognizance.

7. POLICY

- Industrial Preparedness Planning documents shall be validated by the ASPPO's signature (DoD 4005.3–M).
- ASPPOs are responsible for maintaining plant loading records for each planned facility (DoD 4005.3–M).
- Maximum use shall be made of the ASPPO's expertise and current knowledge of the prime contractor's purchasing and production lead-times for manufacturing, materials, components and subassemblies (DoD 4005.3–M).

8. DISCUSSION

The ASPPO is an institutional asset that is available to the program manager to assist in evaluating production capability at all levels of manufacturing.

As a participant in the industrial preparedness program, he is required to:

- Coordinate and integrate preparedness planning for specific industrial plants and shall be responsible for the accuracy of the planning data developed with the assigned plants.
- Be assigned, generally, to a DCAS region, management area, or plant representative office. When plant cognizance is assigned to a specific Military Department, a representative of that Department shall act as ASPPO.
- Ensure that assigned producers integrate materiel supply and capacity demand vertically and horizontally with other producers in the supply and demand chain based on each plant's military requirements and coordinate with contracting officers and other acquisition activity functions through contract reviews for proper surge and mobilization clauses and DID requirements.
- Be civilian grade GS–12 or higher industrial specialists or engineers and shall be listed in DoD 4005.3–H.

Currently, the program manager interfaces directly with the prime contractor and relies almost entirely

on the prime to provide liaison with the various subcontractors and vendors. While this arrangement may be satisfactory for peacetime acquisition, it does not have the same utility for industrial preparedness planning for the following reasons:

- Prime contractors generally do not have visibility into the subcontractor/vendor structure beyond those that directly support them
- Prime contractors will expect to be compensated for the additional data collection and managerial effort
- Prime contractors, unless they are specially trained, may not have a "mobilization perspective" to pass on to their subcontractors
- Subcontractors may not be willing to give what they might consider proprietary information to another manufacturer.

The ASPPO, on the other hand, does not have the same restrictions. As a Government employee, the ASPPO can discuss proprietary issues with a manufacturer. Because each planned facility has an assigned ASPPO, that person can become proficient in interpreting and integrating industrial preparedness objectives. Among the services that an ASPPO is expected to provide are:

- Performing industrial facility surveys
- Negotiating emergency production schedules with industrial management
- Assessing the need for industrial preparedness measures, including plant equipment packages
- Advising contractors on the Defense Priorities and Allocations System (DPAS)
- Assessing the need for and initiating subcontractor planning
- Maintaining plant loading data
- Evaluation of Data Item Description (DIDs) during preaward and post-award orientations
- Maintaining surveillance of DID IPP requirements and keeping program offices informed about data status.

In acquiring the necessary understanding and visibility of the industrial base — especially the lower production tiers — the program manager can relinquish many of his day-to-day industrial preparedness activities to the industrial specialists and ASPPOs. In order to achieve this coordination and cooperation, the manager must make a practice of including these people in the decisionmaking process. If the manager has established a working relationship with the cognizant industrial specialist (See Discussion 2.1) this specialist can ensure that the appropriate ASPPO is included in all facility visits and is properly used. The value of this interface is not as significant at the prime contractor level where the manager has regular contact but becomes increasingly important at the subcontractor/vendor level where inordinate manpower resources would be required in order for the program office to obtain direct government/contractor working relationships.

It is important for the program manager to comprehend the value of the planned producer to his program. The participation of industry in industrial preparedness planning is in most cases voluntary. Exceptions are those instances in which the Government has a contractual right under a facilities lease or a contract line item. A company's agreement to participate in IPP indicates a willingness to provide information about production capabilities, physical characteristics, and certain other required data. The company agrees to provide the ASPPO with (a) an official point of contact for coordinating and monitoring the planning process within each participating company; (b) the information required to develop realistic production schedules and subcontractor production schedules; and (c) information on bottlenecks or changes affecting the company's ability to provide planned production.

Through the planned producer mechanism, the astute manager can receive important insight into industrial capability and impediments. However, with this management advantage comes some additional responsibility. A contractor's expressed willingness to become a planned producer can be formalized only when the ASPPO and contractor's industrial preparedness representative both have completed and signed page one of the DD Form 1519 to consummate the planning process. The ASPPO shall use the signed agreement as the basis to register the facility in the RPEP, if necessary, and enter the allocated capacity on the facility Plant Loading Record.

All planned producers have a right to compete for peacetime procurement for the same items. DoD FAR Supplement 8.070g.(1) specifies that planned producers shall be solicited in all procurements over $10,000 for items for which they have signed a planning agreement. FAR 19.5 states that a total small business set-aside will not be authorized when one or more large business planned emergency producers of the item desires to participate in the acquisition. A partial set-aside may apply. FAR 6.302-3 allows acquisition using other than full and open competitive procedures when it is necessary to award a contract to a particular source or sources in order to maintain a facility, producer, manufacturer, or other supplier available for furnishing supplies or services when a national emergency occurs or to achieve industrial mobilization.

APPENDIX A
ASPPOs

DEPARTMENT OF THE ARMY

Code No.	ASPPO
060	Commander U.S. Army Plant Representative Office Bell Helicopter TEXTRON ATTN: SAVBE-IPB P.O. Box 1605 Fort Worth, TX 76101 Commercial: 817 280-7786 Autovon: 477-7786
061	Commander U.S. Army Plant Representative Office Hughes Helicopters, Inc. ..... McDonald Douglas Helicopter Co. ATTN: SAVMO-PI 5000 McDowell Road Mesa, AZ 85205-9797 Commercial: (602) 891-3579 Autovon: 474-3579
062	Commander U.S. Army Tank-Automotive Command Procurement & Production Directorate Production Division Industrial Preparedness Branch ATTN: AMSTA-ICC Warren, MI 48397-5000 Commercial: 313 786-7011 Autovon: 973-7011
063	Commander U.S. Army Armament, Munitions & Chemical Command Industrial Readiness Directorate ATTN: AMSMC-IRB-R Rock Island, IL 51299-6000 Commercial: 309 782-2955 Autovon: 793-2955
065	Commander U.S. Army Communications-Electronics Command Production Division Industrial Preparedness Branch ATTN: AMSEL-ED-PI Fort Monmouth, NJ 07703-5000 Commercial: 201 532-4737 Autovon: 992-4737
075	Commander U.S. Army Plant Representative Office Boeing-Vertol Company ATTN: SAVBV-PI P.O. Box 16859 Philadelphia, PA 19142 Commercial: 215 522-8525 Autovon: 444-3817
076	Commander Watervliet Arsenal ATTN: SMCWV-PPI Watervliet, NY 12189 Commercial: 518 266-4251 Autovon: 974-4251
077	Commander's Representative Badger Army Ammunition Plant ATTN: SMCBA Baraboo, WI 53913-5000 Commercial: 608 356-5525 Autovon: 280-9200
078	Commander's Representative Cornhusker Army Ammunition Plant ATTN: SMCCO Grand Island, NB 68802-2041 Commercial: 308 389-2100 Autovon: 939-3690

DEPARTMENT OF THE ARMY

Code No.	ASPPO
079	Commander Crane Army Ammunition Activity ATTN: SMCCN Crane, IN 47522-5099 Commercial: 812 854-2511 Autovon: 482-1484
080	Commander Hawthorne Army Ammunition Plant ATTN: SMCHW Hawthorne, NV 89415-5000 Commercial: 702 945-7001 Autovon: 830-7001
081	Commander's Representative Hays Army Ammunition Plant ATTN: SMCHA Pittsburgh, PA 15207-1969 Commercial: 412 462-8411 No Autovon
082	Commander Holston Army Ammunition Plant ATTN: SMCHO Kingsport, TN 37660-9982 Commercial: 615 247-9111 Autovon: 748-3751
083	Commander Indiana Army Ammunition Plant ATTN: SMCIN Charlestown, IN 47111-9667 Commercial: 812 284-7911 Autovon: 366-7911
084	Commander Iowa Army Ammunition Plant ATTN: SMCIO Middletown, IA 52638-5000 Commercial: 319 753-7200 Autovon: 585-7200
085	Commander's Representative Joliet Army Ammunition Plant ATTN: SMCJO Joliet, IL 60436-5000 Commercial: 815 424-2001 Autovon: 696-2001
086	Commander Kansas Army Ammunition Plant ATTN: SMCKA Parsons, KS 67357-9107 Commercial: 316 421-7446 Autovon: 956-1446
087	Commander Lake City Army Ammunition Plant ATTN: SMCLC Independence, MO 64051-0330 Commercial: 816 796-7101 Autovon: 463-9101
088	Commander Lone Star Army Ammunition Plant ATTN: SMCLS Texarkana, TX 75505-9101 Commercial: 214 838-1506 Autovon: 829-1207
089	Commander Longhorn Army Ammunition Plant ATTN: SMCLO Marshall, TX 75670-1059 Commercial: 214 679-3181 Autovon: 956-2100
090	Commander Louisiana Army Ammunition Plant ATTN: SMCLA Shreveport, LA 71130-5000 Commercial: 318 459-5501 Autovon: 637-5100

DEPARTMENT OF THE ARMY

Code No.	ASPPO
091	Commander McAlester Army Ammunition Plant ATTN: SMCMC-CO McAlester, OK 74501-5000 Commercial: 918 421-2211 Autovon: 956-6211
092	Commander Milan Army Ammunition Plant ATTN: SMCMI-CO Milan, TN 38358-5000 Commercial: 901 686-6101 Autovon: 966-6087
093	Commander Mississippi Army Ammunition Plant ATTN: SMCMS-CO NSTL Base, MS 39466-5000 Commercial: 601 467-8258 Autovon: 446-8902
094	Commander's Representative Newport Army Ammunition Plant ATTN: SMCNE-SR Newport, IN 47966-0121 Commercial: 317 245-2251 Autovon: 634-1591
095	Commander Radford Army Ammunition Plant ATTN: SMCRA-C0 Radford, VA 24141-0298 Commercial: 703 639-7325 Autovon: 931-8711
096	Commander's Representative Ravenna Army Ammunition Plant ATTN: SMCRV-OR Ravenna, OH 44266-9297 Commercial: 216 358-7111 Autovon: 346-3324
097	Commander Riverbank Army Ammunition Plant ATTN: SMCRB-CO Riverbank, CA 95367-0678 Commercial: 209 529-8100 Autovon: 466-4239
098	Commander's Representative St. Louis Army Ammunition Plant ATTN: SMCSL-CR St. Louis, MO 63120-1584 Commercial: 314 263-3342 Autovon: 693-3842
099	Commander's Representative Scranton Army Ammunition Plant ATTN: SMCSC-XC Scranton, PA 18505-1138 Commercial: 717 342-7725/7801 Autovon: 247-1360
100	Commander Sunflower Army Ammunition Plant ATTN: SMCSU DeSoto, KS 66018-0640 Commercial: 913 791-6700 Autovon: 720-6789
101	Commander's Representative Twin Cities Army Ammunition Plant ATTN: SMCTC New Brighton, MN 55112-5000 Commercial: 612 633-2301 Autovon: 798-1500 X661
102	Commander's Representative Volunteer Army Ammunition Plant ATTN: SMCVO Chattanooga, TN 37422-2607 Commercial: 615 855-7109 Autovon: 588-9109
103	Commander Rock Island Arsenal ATTN: SMCRI Rock Island, IL 61299-5000 Commercial: 309-782-6035 Autovon: 793-6035
104	Commander Pine Bluff Arsenal ATTN: SMCPB Pine Bluff, AR 71602-9500 Commercial: 501 541-3000 Autovon: 966-3000

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Code No.	ASPPO
106	Supervisor of Shipbuilding, Conversion & Repair, USN 574 Washington Street Bath, ME 04530-0998 Commercial: 207 443-2273 Autovon: 476-1110 x2273
107	Supervisor of Shipbuilding, Conversion & Repair, USN P.O. Box 26 Sturgeon Bay, WI 54235-0026 Commercial: 414 743-4453/4/5 No Autovon
108	Commanding Officer Philadelphia Naval Shipyard Industrial & Facility Management Department Code 1100 Philadelphia, PA 19112-5087 Commercial: 215 755-3380 Autovon: 443-3380
112	Supervisor of Shipbuilding, Conversion & Repair, USN Groton, CT 06340-4990 Commercial: 203 446-2665 x3234 Autovon: 241-4735
116	Supervisor of Shipbuilding, Conversion & Repair, USN Naval Station P.O. Box 119 San Diego, CA 92136-5119 Commercial: 619 235-2425 Autovon: 958-2425
120	Supervisor of Shipbuilding, Conversion & Repair, USN Newport News, VA 23607-2785 Commercial: 804 380-4122 Autovon: 690-1154
122	Supervisor of Shipbuilding, Conversion & Repair, USN Flushing & Washington Avenues Brooklyn, NY 11251-9000 Commercial: 212 834-2293 Autovon: 456-2293
124	Supervisor of Shipbuilding, Conversion & Repair, USN Pascagoula, MS 39567-2210 Commercial: 601 769-4242 Autovon: 457-4242
130	Supervisor of Shipbuilding, Conversion & Repair, USN San Francisco, CA 94124-2996 Commercial: 415 641-2830 Autovon: 869-2830
132	Supervisor of Shipbuilding Conversion & Repair, USN Seattle, WA 98115-5001 Commercial: 206 527-3406/7 Autovon: 941-3406/7
154	Supervisor of Shipbuilding, Conversion & Repair, USN 495 Summer Street Boston, MA 02210-2181 Commercial: 617 451-4636/7 Autovon: 955-4636/7
158	Supervisor of Shipbuilding, Conversion & Repair, USN ATTN: Code 158, Naval Base Charleston, SC 29408-6230 Commercial: 803 743-4873 Autovon: 794-4873
164	Supervisor of Shipbuilding, Conversion & Repair, USN Drawer -T Mayport Naval Station Jacksonville, FL 32228-0020 Commercial: 904 246-5765 Autovon: 960-5765
168	Supervisor of Shipbuilding, Conversion & Repair, USN New Orleans, LA 70146-5700 Commercial: 504 361-2156 Autovon: 485-2156

Code No.	ASPPO
178	Supervisor of Shipbuilding, Conversion & Repair, USN P.O. Box 215 Portsmouth, VA 23705-0215 Commercial: 804 393-3152 Autovon: 961-3152
180	Supervisor of Shipbuilding, Conversion & Repair, USN P.O. Box 400 Pearl Harbor, HI 96860-5353 Commercial: 808 471-3568 No Autovon
182	Supervisor of Shipbuilding, Conversion & Repair, USN Long Beach Naval Shipyard Long Beach, CA 90822-5093 Commercial: 213 547-7518 Autovon: 360-7518
240	Commanding Officer Naval Plant Representative Office 1675 W. Mission Boulevard P.O. Box 2505 Pomona, CA 91769-2505 Commercial: 714 868-3804 No Autovon
270	Naval Plant Representative Office Lockheed Missile & Space Corp. The Strategic Systems Program Office P.O. Box 3504 Sunnyvale, CA 94088-3504 Commercial: 408 742-7573 Autovon: 462-5889
308	Naval Plant Representative Office Grumman Aerospace Corporation Bethpage, L.I., NY 11714-3531 Commercial: 516 575-6191 No Autovon
316	Naval Plant Representative Office Lockheed Aircraft Corporation P.O. Box 551 Burbank, CA 91520-1070 Commercial: 818 847-5830 No Autovon
324	Naval Plant Representative Office Vought Corporation P.O. Box 775907 Dallas, TX 75265-5907 Commercial: 214 266-5985 No Autovon
328	Commanding Officer Naval Plant Representative Office Sperry Division Sperry Rand Corporation Great Neck, NY 11020-7001 Commercial: 516-574-3281 No Autovon
349	Commanding Officer Naval Plant Representative Office Johns Hopkins Road Laurel, MD 20707-6090 Commercial: 301 953-7100 x7583/4 No Autovon
351	Commanding Officer Naval Plant Representative Office Special Projects Office General Electric Company Ordnance Department 100 Plastics Avenue Pittsfield, MA 01201-3696 Commercial: 413 494-4263 No Autovon
358	Commanding Officer Naval Plant Representative Office McDonnell Douglas Corporation P.O. Box 516 St. Louis, MO 63166-0516 Commercial: 314 232-9914 No Autovon
360	Naval Plant Representative Office Code INP-3 General Electric Company 1000 Western Avenue Lynn, MA 01910-4451 Commercial: 617 594-5682/3 No Autovon

DEPARTMENT OF THE NAVY

Code No.	ASPPO
364	Naval Plant Representative Office United Technologies Corporation Sikorsky Aircraft Division Stratford, CT 06497-7553 Commercial: 203 396-6766 No Autovon
366	Naval Plant Representative Office 4800 East River Road Minneapolis, MN 55421-1402 Commercial: 612 571-9201 x2090 No Autovon
501	Commanding Officer Naval Weapons Support Center Crane, IN 47522-5000 Commercial: 812 854-1493 Autovon: 482-1493
505	Commanding Officer Naval Avionics Center Code 610 6000 E. 21st Street Indianapolis, IN 46219-2189 Commercial: 317 353-7003 Autovon: 369-7003
507	Commanding Officer Naval Weapons Station - Earle Colts Neck, NJ 07722-5000 Commercial: 201 462-9500 x222 Autovon: 449-1222
511	Commanding Officer Naval Ordnance Station Code 16M Louisville, KY 40214-5001 Commercial: 502 367-5388 Autovon: 989-5388
518	Commanding Officer U.S. Naval Ordnance Station Code 051B Indian Head, MD 20640-5000 Commercial: 301 743-4575 Autovon: 364-4575
535	Commanding Officer Naval Undersea Warfare Engineering Station Keyport, WA 98345-0580 Commercial: 206 396-2345 Autovon: 744-2345
540	Commanding Officer Naval Weapons Station Yorktown, VA 23691-5000 Commercial: 804 887-4977 Autovon: 953-4977
541	Commanding Officer Naval Weapons Station Charleston, SC 29408-6230 Commercial: 803 743-7746 Autovon: 794-7746
542	Commanding Officer Naval Weapons Station Code 05 Concord, CA 94520-5000 Commercial: 415 671-2611 Autovon: 730-1550 x2611
543	Commanding Officer Naval Weapons Station Seal Beach, CA 90740-5000 Commercial: 213 594-7329 Autovon: 873-7329

DEPARTMENT OF THE AIR FORCE

Code No.	ASPPO
610	HQ, AFCMD Directorate of Manufacturing Operations (PD) Kirtland AFB Albuquerque, NM 87117 Commercial: 505 844-9656 Autovon: 244-9656
625	Air Force Plant Representative OFC Det 47, AF Contract Management Division (AFSC) McDonnell Douglas Corporation 3855 Lakewood Boulevard Long Beach, CA 90846 Commercial: 213 593-2114/2119 No Autovon
627	Air Force Plant Representative General Electric Company Evendale Plant Cincinnati, OH 45215 Commercial: 513 243-6049 No Autovon
635	Air Force Plant Representative Pratt & Whitney Aircraft Group Government Products Division P.O. Box 2691 West Palm Beach, FL 33402 Commercial: 305 840-2243 No Autovon
642	Air Force Plant Representative Westinghouse Electric Corporation Defense Electronics System Center P.O. Box 1693 Baltimore, MD 21203 Commercial: 301 765-3063 No Autovon
644	Air Force Plant Representative Boeing Company Mailstop 1F02 P.O. Box 3707 Seattle, WA 98124 Commercial: 206 655-8391 No Autovon
645	AFCMD Detachment 34 Boeing Military Airplane Company P.O. Box 7730 Wichita, KS 67277 Commercial: 316 526-3351 Autovon: 743-5080
655	Air Force Plant Representative Aerojet General Corporation P.O. Box 15846 Sacramento, CA 95852 Commercial: 916 355-4776 Autovon: 828-1110 ask for 355-4776
660	Air Force Plant Representative Rockwell International Corporation North American Aircraft Operations Columbus & Missile System Divisions P.O. Box 1259 Columbus, OH 43216 Commercial: 614 239-2835 No Autovon
663	Air Force Plant Representative General Dynamics Corporation Fort Worth Division P.O. Box 371 Air Force Plant #4 Ft. Worth, TX 76101 Commercial: 817 732-4811 x5771 Autovon: 838-5771
685	Air Force Plant Representative Hughes Aircraft Company P.O. Box 92463 Los Angeles, CA 90009 Commercial: 213 414-6564 No Autovon
686	Air Force Plant Representative Rockwell International Corp. 3370 Miraloma Avenue Anaheim, CA 92803 Commercial: 714 632-2171 No Autovon

Code No.	ASPPO	Code No.	ASPPO
687	Air Force Plant Representative Lockheed-Georgia Company 86 S. Cobb Drive Marietta, GA 30063 Commercial: 404 424-4542 Autovon: 925-1110 x4542		
688	Air Force Plant Representative AVCO Corp. 201 Lowell Street Wilmington, MA 01887 Commercial: 617 657-2021 Autovon: 881-1850		
699	Air Force Plant Representative Fairchild Republic Company Contract Management Division (AFSC) Farmingdale, NY 11735 Commercial: 516 531-3134 Autovon: 994-3468 x3134		

DEFENSE LOGISTICS AGENCY

Code No.	ASPPO
	DCAS ASPPO COORDINATING OFFICE
	Headquarters Defense Logistics Agency ATTN: DLA-AP Cameron Station Alexandria, VA 22304-6100 Commercial: 202 274-7651/7751 Autovon: 284-7651/7751
	DCASR, ATLANTA
806	Commander DCASR, Atlanta ATTN: DCASR ATL-AP 805 Walker Street Marietta, GA 30060-2789 Commercial: 404 429-6706 Autovon: 697-6706
810	Commander DCASMA, Atlanta ATTN: DCASR ATL-RAPI 805 Walker Street Marietta, GA 30060-5036 Commercial: 404 429-6036 Autovon: 697-6036
811	Commander DCASMA, Birmingham ATTN: DCASR ATL-SAPP 2121 Eighth Avenue, N., Suite 104 Birmingham, AL 35203-2376 Commercial: 205 226-4507 Autovon: 697-4507
812	Commander DCASMA, Orlando ATTN: DCASR ATL-OAPP 3555 Maguire Boulevard Orlando, FL 32803-3726 Commercial: 305 228-5253 Autovon: 697-5253

Code No.	ASPPO
	DCASR, BOSTON
800	Commander DCASPRO, Raytheon ATTN: DCASPRO Raytheon-RAP Raytheon Service Company 2 Wayside Road Burlington, MA 01803-0901 Commercial: 617 272-9300 x2511 No Autovon
813	Commander DCASMA Buffalo ATTN: DCASMA Buffalo-BAP 1103 Federal Building 111 W. Huron Street Buffalo, NY 14202-2392 Commercial: 716 846-4672 No Autovon
814	Commander DCASMA Bridgeport ATTN: DCASR NY-GBAP 555Lord Ship Road Stratford, CT 06497 Commercial: 203 385-4415 No Autovon
815	Commander DCASMA Boston ATTN: DCASMA BOS-FAP 495 Summer Street Boston, MA 02210-2184 Commercial: 617 451-4189 Autovon: 955-4189

DEFINITIONS:

DCASR - Defense Contract Administration Services Region
DCASMA - Defense Contract Administration Services Management Area
DCASPRO - Defense Contract Administration Services Plant Representative Office

Code No.	ASPPO
816	Commander DCASMA Hartford ATTN: DCASMA Hartford-UAPC 96 Murphy Road Hartford, CT 06114-2173 Commercial: 203 240-3994 No Autovon
818	Resident In Charge DCASMA Syracuse/Res. Binghamton ATTN: DCASR BOS-SAP 600 Main Street Johnson City, NY 13790 Commercial: 607 773-2806/2812 No Autovon
819	Commander DCASMA Syracuse ATTN: DCASMA Syracuse-SAP U.S. Courthouse & Federal Bldg. 100 S. Clinton Street Syracuse, NY 13260-0115 Commercial: 315 423-5286 No Autovon
880	Commander DCASPRO Sanders Sanders Associates Inc. ATTN: DCASR BOS-NCP Daniel Webster Highway South Nashua, NH 03061-0868 Commercial: 603 885-2393 No Autovon
881	Commander DCASPRO GTE Communication Systems Corp. Government Systems Group ATTN: DCASPRO GTE-JAP 360 First Avenue Needham Heights, MA 02194-2787 Commercial: 617 449-2000 x4767 No Autovon
882	Commander DCASPRO GE Burlington General Electric Co. ATTN: DCASR BOS-VCP Lakeside Avenue Burlington, VT 05401-4984 Commercial: 802 657-6354 No Autovon
883	Commander DCASPRO IBM Owego IBM Corp. ATTN: DCASR BOS-ICP Route 17C Owego, NY 13827-1298 Commercial: 607 751-5758 No Autovon
884	Commander DCASPRO Texton Lycoming Div. ATTN: DCASR NY-RAAP Stratford Army Engine Plant Avco Lycoming Div. 550 S. Main Street Stratford, CT 06497-7554 Commercial: 203 385-3548 No Autovon
885	Commander DCASPRO Hamilton Standard ATTN: MAP Hamilton Standard Windsor Locks, CT 06096-0463 Commercial: 203 623-1621 x4469 No Autovon

Code No.	ASPPO
	DCASR, CHICAGO
820	Commander DCASMA Chicago ATTN: DCASR CHI-GCAP O'Hare International Airport P.O. Box 66911 Chicago, IL 60666-0911 Commercial: 312 694-6205 Autovon: 930-6205
821	Commander DCASMA Indianapolis ATTN: DCASR CHI-GIAP Building No. 1 - Finance Center Ft. Benjamin Harrison, IN 46249-5701 Commercial: 317 542-2094 Autovon: 699-2094
822	Commander DCASMA Milwaukee ATTN: DCASR CHI-GMAP 310 W. Wisconsin Avenue Milwaukee, WI 53203-4597 Commercial: 414 291-4354 Autovon: 824-4354
	DCASR, CLEVELAND
825	Commander DCASMA Cleveland ATTN: DCASR CLE-GCAP Federal Office Building 1240 E. Ninth Street Cleveland, OH 44199-2064 Commercial: 216 522-5120/21 Autovon: 580-5120/21
826	Commander DCASMA Dayton ATTN: DCASR CLE-GDAP c/o Defense Electronics Supply Center - Building 1 Dayton, OH 45444-5300 Commercial: 513 296-5495 Autovon: 986-5495
835	Commander DCASMA Detroit ATTN: DCASR CLE-GTAP Patrick V. McNamara Federal Bldg. 477 Michigan Avenue Detroit, MI 48226-2506 Commercial: 313 226-5009 Autovon: 346-5009
836	Commander DCASMA Grand Rapids ATTN: DCASR CLE-GGCP 678 Front Street, NW Grand Rapids, MI 49504-5352 Commercial: 616 456-2665 Autovon: 741-8665
	DCASR, DALLAS
830	Commander DCASMA Dallas ATTN: DCASR DAL-GDAP 500 S. Ervay Street Dallas, TX 75201-6377 Commercial: 214 670-9436 Autovon: 940-1436
831	Commander DCASMA San Antonio ATTN: DCASR DAL-GSAP P.O. Box 1040, Main Post Office 615 Houston Street San Antonio, TX 78294-1040 Commercial: 512 229-6713 Autovon: 940-1249
832	Commander DCASPRO E-Systems ATTN: DCASR DAL-RGAP Majors Field, P.O. Box 379 Greenville, TX 75401-0379 Commercial: 214 454-4645 Autovon: 940-1286/1288

Code No.	ASPPO
834	Commander DCASPRO Rockwell International ATTN: DCASR DAL-RIAP 3200 E. Renner Road M/S 462-115 Richardson, TX 75081-6209 Commercial: 214 996-0864/0865 Autovon: 940-1409
837	Commander DCASPRO Texas Instruments ATTN: DCASR DAL-RTAP 13773 North Central Expressway Bldg. 1500 Keystone P.O. Box 660246, M/S 256 Dallas, TX 75266-0246 Commercial: 214 995-5251 Autovon: 940-1392
838	Commander DCASPRO Rockwell International ATTN: DCASR DAL-RMCP 2000 Memorial Drive Tulsa, OK 74115-3833 Commercial: 918 838-6238 Autovon: 940-1418/19
845	Commander DCASMA Phoenix ATTN: DCASR DAL-GXAP The Monroe School 215 North 7th Street Phoenix, AZ 85034-1012 Commercial: 602 261-6167 Autovon: 231-6167
807	Commander DCASMA New Orleans ATTN: DCASR DAL-GNAP (A) 13800 Old Gentily Highway NASA Building 305 P.O. Box 29283 New Orleans, LA 70189-0283 Commercial: 504 225-2545/2251 No Autovon

Code No.	ASPPO
	DCASR, LOS ANGELES
840	Commander DCASMA El Segundo ATTN: DCASR LA-GLAP 222 N. Sepulueda Blvd El Segundo, CA 90245-4319 Commercial: 213 333-3334 Autovon: 972-3334
842	Commander DCASMA Van Nuys ATTN: DCASMA LA-GVAP Federal Office Building 6230 Van Nuys Boulevard Van Nuys, CA 91401-2713 Commercial: 818 904-6331 Autovon: 972-6331
843	Commander DCASMA Santa Ana ATTN: DCASR LA-GAAP 34 Civic Center Plaza P.O. Box C-12700 Santa Ana, CA 92712-2700 Commercial: 714 836-2738 Autovon: 873-2738
844	Commander DCASMA San Diego ATTN: DCASR LA-GSAP 4297 Pacific Coast Highway San Diego, CA 92110-32896 Commercial: 619 260-2026 Autovon: 957-20526
855	Commander DCASPRO FMC ATTN: DCASR LA-RFAP P.O. Box 367 San Jose, CA 95103-0367 Commercial: 408 289-3193 No Autovon

DEFENSE LOGISTICS AGENCY

Code No.	ASPPO
856	Commander DCASMA Seattle ATTN: DCASR LA-GWAP Naval Station Puget Sound Building 5D Seattle, WA 98115-5010 Commercial: 206 526-3840/3097 Autovon: 941-3840
857	Commander DCASMA San Francisco ATTN: DCASR LA-GFAP 1250 Bayhill Drive San Bruno, CA 94066-3070 Commercial: 415 876-9595 Autovon: 466-9595
858	Commander DCASPRO General Dynamics ATTN: DCASR LA-RCAP 5001 Kearny Villa Road P.O. Box 85357 San Diego, CA 92138-5357 Commercial: 619 573-9302 No Autovon
859	Comander DCASPRO Hughes Fullerton ATTN: DCASR LA-RHAP 1901 W. Malvern P.O. BOX 3310 Fullerton, CA 92634-3310 Commercial: 714 732-6541 Autovon: 873-2730
	DCASR, NEW YORK
850	Commander DSASMA New York ATTN: DCASR NY-GNAPI 201 Varick Street New York, NY 10014-4811 Commercial: 212 807-3161/63 Autovon: 994-3161/63
851	Commander DCASMA Garden City ATTN: DCASR NY-GGAPI 605 Stewart Avenue Garden City, L.I., NY 11530-4761 Commercial: 516 228-5884 Autovon: 994-5884
852	Commander DCASMA Springfield ATTN: DCASR NY-GSAPI 240 Route 22 Springfield, NJ 07081-3170 Commercial: 201 564-8407/8402 Autovon: 994-8407/8402
	DCASR, PHILADELPHIA
801	Commander DCASMA Philadelphia ATTN: DCASR PHI-GAAPW P.O. Box 7699 Philadelphia, PA 19101-7699 Commercial: 215 952-3588 Autovon: 444-3588
802	Commander DCASMA Baltimore ATTN: DCASR PHI-GBC Room 200 Hampton Plaza Building 300 E. Joppa Road Towson, MD 21204-3099 Commercial: 301 321-4875 Autovon: 444-4875
803	Commander DCASMA Pittsburgh ATTN: DCASR PHI-GPAP 1612 Federal Building 1000 Liberty Avenue Pittsburgh, PA 15222-4190 Commercial: 412 644-5971 Autovon: 242-5971

Code No.	ASPPO
804	Commander DCASMA Reading ATTN: DCASR PHI-GRGK 45 S. Front Street Reading, PA 19602-1094 Commercial: 215 320-5044 Autovon: 444-5044
871	Commander DCASPRO RCA ATTN: DCASR PHI-RMD Marne Hwy & Borton Landing Road Moorestown, NJ 08057-3095 Commercial: 609 722-2604 No Autovon
872	Commander DCASPRO IBM Manassas ATTN: DCASR PHI-RIAP 9500 Godwin Drive Manassas, VA 22110-4198 Commercial: 703 367-4698 Autovon: 444-4807/08
	DCASR, ST. LOUIS
860	Commander DCASMA St. Louis ATTN: DCASR STL-GSAP 405 S. Tucker Blvd Room 5101 St. Louis, MO 63102-1181 Commercial: 314 263-0915 Autovon: 693-0915
861	Commander DCASMA Twin Cities ATTN: DCASR STL-GTAD 2305 Ford Parkway St. Paul. MN 55116-1893 Commercial: 612 690-8310 Autovon: 825-8310

Code No.	ASPPO
862	Commander DCASMA Denver ATTN: DCASR STL-GTAD Suite 250 Building 5, 750 W. Hampden Avenue Englewood, CO 80110-2199 Commercial: 303 762-7325 Autovon: 943-7325
863	Commander DCASMA Cedar Rapids ATTN: DCASR STL-GCAP 1231 Park Place, N.E. Cedar Rapids, IA 52402-1251 Commercial: 319 395-0192 Autovon: 720-0192
865	Commander DCASMA Wichita ATTN: DCASR STL-GWAP 435 S. Water Street Wichita, KS 67202-3617 Commercial: 316 269-7108 Autovon: 463-7108
866	Commander DCASPRO Honeywell ATTN: DCASR STL-RHAP Honeywell Plaza 2701 Fourth Avenue South Minneapolis, MN 55408-1792 Commercial: 612 870-2460 Autovon: 825-6365 (Ask for 870-2460)

Code No.	ASPPO
	DEPARTMENT OF TRANSPORTATION
941	U.S. Department of Transportation Maritime Administration 400 7th Street, S.W. Washington, DC 20590 Commercial: 202 382-6100 No Autovon
942	Maritime Administration Central Region Ships Management Officer International Trade Mark Building 2 Canal Street New Orleans, LA 70130 Commercial: 504 682-6564 No Autovon
943	Maritime Administration Western Region Ship Operations Office 450 Golden Gate Avenue San Francisco, CA 94102 Commercial: 415 556-1401 No Autovon

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	CANADA
750	Canadian Commercial Corporation Ottawa, Ontario, Canada K1A OS6 Commercial: 819 997-5265 Autovon: 627-8011 x75265

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 2.3

VERSION: ORIGINAL

DATE: 17 JUNE 1988

1. TOPIC

Protecting the Defense Industrial Base

2. TOPIC SUMMARY

- ***The maintenance of a broad, technologically superior mobilization base is a fundamental element of U.S. defense policy.***
- ***Increasing reliance on offshore sources for both processes and components erodes the capability to rapidly increase production output.***
- ***Industrial preparedness plans assume that the U.S. industrial base is undamaged.***

3. REFERENCES

—DoDD 5000.1, "Major and Non-Major Defense Acquisition Programs"

—DoDD 4005.1, "Industrial Preparedness Program"

—DoDI 4005.3, "Industrial Preparedness Planning"

—DoDI 5160.54, "DoD Key Assets Protection Program (KAPP)"

—FAR 6.202, "Establishing or Maintaining Alternative Sources"

—FAR 6.302-3, "Industrial Mobilization; or Engineering, Development, or Research Capability"

4. POINTS OF CONTACT

- Contracting Officers
- Competition Advocates
- Industrial Specialists
- Key Asset Protection Program
  - — ODUSD(P)/EP, Washington, DC 20301-2200
  - — ODUSD(A), Washington, DC 20301-2200
  - — OJCS J4, Attn: LPD, Washington, DC 20301-5000

5. ABBREVIATIONS

IB	Industrial Base
KAPP ...	Key Asset Protection Program
NADIBO	North American Industrial Base Organization
NATO ..	North Atlantic Treaty Organization

6. DEFINITIONS

- ***Industrial Base (IB).*** That part of the total privately owned and Government-owned industrial production in the United States and Canada and the depot-level equipment and maintenance capacity of the United States, its Territories and Possessions, as well as capacity located in Canada that is, or shall be made, available in an emergency for the manufacture of items required by the U.S. Armed Forces and selected allies.
- ***Industrial Asset.*** Any factory, plant, building, or structure used for manufacturing, production, processing, repairing, assembling, storing, or distributing a product or components. This includes vendor and subcontractor performance locations where components or materials are produced for delivery to the prime or main plant.

7. POLICY

- A strong U.S. industrial base is essential for a strong defense (DoDD 5000.1).
- DoD components will limit industrial preparedness planning to producers located in the U.S. and Canada (DoDI 4005.3).
- To minimize the potential effects of an enemy attack on the industrial base, DoD components should develop planned producers in dispersed locations whenever possible or alternate production sources when appropriate (DoDI 4005.3).
- It is the policy of the United States to have an emergency mobilization preparedness capability that will ensure that government at all levels, in partnership with the private sector and the American people, can respond decisively and effectively to any major national emergency

with defense of the United States as the first priority (DoDD 5160.54).

8. DISCUSSION

There are three aspects of industrial base protection that fall within the context of acquisition management.

- Ensure that a usable and healthy industrial base is preserved by promoting Government/industry cooperation
- Seek geographical dispersion of essential production facilities to the maximum possible extent
- Reduce the chance of loss of capability due to sabotage, espionage, and other hostile or destructive acts.

The first aspect, to ensure a viable and healthy industrial base, is primarily achieved by establishing an economically strong environment within which the industrial base can maintain a strong and competitive manufacturing posture. While many possible actions are beyond the scope of the individual program manager, the conscientious manager must be aware of the economic niche that comprises the industries supporting his program. Without this awareness, he cannot comply with the mandate of DoDD 5000.1 to explicitly consider the near-term and long-term implications and ramifications of acquisition programs on the U.S. defense base during the decisionmaking process. Actions that support individual programs must be compatible with the overarching DoD strategies and policies.

At the forefront of DoD initiatives is the DoD strategy for bolstering Defense industrial competitiveness* which was begun by Dr. Robert B. Costello, Under Secretary of Defense for Acquisition. The objectives of this strategy are:

- To explore the national security implications of an increasingly competitive world economy
- To explore the scope and nature of our industries' responses to an ever more demanding internationalization of economic activity
- To offer recommendations for further action by the Department of Defense and other elements of the U.S. Government
- To identify actions to reduce the costs and improve the quality of DoD weapon systems.

This report is only one example of the growing recognition that the defense industrial base is not autonomous and must interact in the world marketplace. Additionally, there is a consensus that DoD must work closely with industry to develop and maintain a competitive edge. By supporting these goals, DoD will be able to enhance the capability of U.S. industry to respond to crisis production demands with little direct financial support.

At the heart of this issue is the definition of the defense industrial base. The traditional definition includes only production facilities located in the continental United States and Canada. This special relationship, which treats Canadian industry as coequal with U.S. industry, was formalized in the "Hyde Park Declaration" signed on 21 April 1941. Support for this bilateral union was renewed at the Quebec summit declaration of 18 March 1985 by President Reagan and Prime Minister Mulroney. Further agreement to the concept occurred on 23 March 1987 when Dr. Costello and Mr. Edwin Healy, Canadian Assistant Deputy Minister (of Defence) for materiel signed the memorandum of understanding concerning the principles of combined logistics support and the charter for the North American Defense Industrial Base (NADIB) Organization. However, many program managers and contracting officers do not recognize the privileged position afforded Canadian industry and, therefore, inappropriately apply some procurement regulations.

The failure of the acquisition community to recognize policies that require preferential treatment of the North American Industrial Base is compounded by Federal policies that require the full participation of other NATO manufacturers in the production of U.S. weapons. While the goals of industrial preparedness can be enhanced by judicious application of international cooperation, the placing of cooperative efforts ahead of support for NADIB creates confusion regarding the nation's industrial policy and can undermine efforts to acquire a healthy industrial base.

The second aspect, to seek geographical dispersion of essential production facilities, has in itself four aspects that demand consideration when establishing production capability:

- Preventing large scale loss of facilities due to a direct enemy attack
- Preventing large scale loss of facilities due to a natural disaster such as an earthquake
- Avoiding potential regional infrastructure (energy, transportation) overload during periods of increased production
- Taking maximum advantage of labor surplus areas.

One of the assumptions for industrial preparedness planning is that the U.S. industrial base is

*OUSD(A) Report, *Bolstering U.S. Defense Industrial Competitiveness*, July 1988.

undamaged. This assumption is reasonable for planning capacity, but a prudent planner must recognize that there is some possibility that damage would occur during a major conflict. Given a choice, dispersion is a way to "hedge the bet."

Recent scientific evidence indicates that there is a 50 percent probability that a catastrophic earthquake will occur in the state of California within the next three decades. A catastrophic earthquake (at least 8.3 on the Richter scale) occurring in California would have major impact on the national defense capability.

The importance of California to our national security can be demonstrated by a number of facts:

1. In Fiscal Year 1983, California had over $30 billion in prime contract awards exceeding $10,000. This does not include indirect awards to subcontractors and supply vendors.
2. Over 50 percent of the U.S. missile and space vehicle business is in California.
3. California has about 75 percent of the domestic micro-chip industry, 40 percent of the U.S. semiconductor business, and more than 20 percent of the U.S. optical instrument business.
4. It has more military installations and equipment than any other state.
5. In many cases, California defense contractors are the only source for some of the most critical defense systems, subassemblies, components, and spare parts.
6. California contains the largest number of defense subcontractors and supply vendors. The percentage of purchase orders going to California ranged from 22 percent to 39 percent for non-California primes and between 32 percent and 57 percent for primes located in the state.

Since not all locations are at risk from any single earthquake, the potential impact of a catastrophic earthquake on U.S. defense production and the readiness of military forces located in California would vary with the location and magnitude of an earthquake. At a minimum, utility services, including communications, transportation, water and sewage systems, gas, and electricity in the immediate area, would be severely disrupted for several days. The length of the disruption would increase substantially with the amount of initial damage, because repair and maintenance resources would be more disrupted themselves and would necessarily be spread more thinly to meet greater recovery demands. If key facilities — such as bridges, dams, generators, satellites communications facilities, and transportation terminals — were damaged or destroyed, moderate-to-severe disruption of these services could continue for weeks or even months. This has obvious implications for defense contractors and military installations that depend on these services.

In addition, many contractors and installations would incur direct damage, ranging from minor to complete destruction, to their buildings and equipment. Again, the time required to repair or reconstruct these facilities would depend on both the level of damage at each facility and the overall level of damage in the impacted area. While in some cases production could be quickly restored to or near pre-earthquake levels even while repair and reconstruction are still in process, production bottlenecks would likely develop in areas where product specifications require exacting production processes. Highly-calibrated equipment and special facilities, such as clean rooms, frequently required for such processes, would be susceptible to damage even if far removed from the most severely impacted area, and could require a protracted restoration effort.

Thus, even while most production capabilities might be restored in a matter of days, actual output of many defense systems could be disrupted or cut off completely for a number of months due to a relatively small number of key bottlenecks.

Regardless of the reason for establishing geographical dispersion, such dispersion can be achieved by using the directed procurement provisions of Chapter 6 of the Federal Acquisition Regulations. The use of competition for industrial preparedness is described in more detail in Chapter 6 of this part.

The third aspect, loss due to hostile or destructive acts, is addressed in DoDD 5160.54, which describes the Key Assets Protection Program (KAPP). Under the provisions of this program, industrial assets can be nominated by DoD Components for inclusion in the key assets list. Once entered in the list, the industrial asset receives a security survey and is assigned a planning agent who is responsible for physical security contingency plans.

Program managers should ensure that critical contractors, subcontractors, and vendors are enrolled in the KAPP. Additionally, the manager should work with the facility managers to develop their physical security plans.

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 2.4

VERSION: ORIGINAL

DATE: 20 JUNE 1988

1. TOPIC

Understanding the Defense Production Act

2. TOPIC SUMMARY

- ***Properly used, the Defense Production Act can be a significant asset to the program manager in the development of mobilization plans.***
- ***Applications of the Defense Production Act must be identified prior to a crisis in order to influence early production capability.***

3. REFERENCES

—Defense Production Act of 1950 (50 U.S.C. App. 2061 *et seq.*)

—Defense Priorities And Allocations System, Department of Commerce

—DoDI 4410.3, "Policies and Procedures for the DoD Master Urgency List (MUL)"

—DoDI 4400.1 "Priorities and allocations - delegation of DO and DX Priorities and Allocations Authorities, Rescheduling of Deliveries and Continuance of Related Manuals"

4. POINTS OF CONTACT

- Local Industrial Specialists
- Office of Industrial Resource Administration, Room 3876, U.S. Department of Commerce, Washington, DC 20230 (202) 377-4506, 377-3634
- Office of Industrial Base Assessment, Skyline Plaza, Suite 1406, 5203 Leesburg Pike, Falls Church, VA 22041-3466 (202) 756-2310

5. ABBREVIATIONS

DPA	Defense Production Act
DPAS ...	Defense Priorities and Allocation System
MUL	Master Urgency List
R&D	Research and Development
SPA	Special Priorities Assistance
USD(A) .	Under Secretary of Defense for Acquisition

6. DEFINITIONS

- ***Master Urgency List (MUL)*** is a management tool to assist in resolving production, R&D, and test bottlenecks (caused by long leadtimes, foreign dependence vulnerability, single and/or sole sources, materiel and material shortages, strikes, natural disasters, terrorist acts; etc.) in advance or as they occur.

7. POLICY

- Programs and projects listed in the DoD MUL shall continue as long as special attention is required to reach and maintain schedules assigned to major programs, including establishing production rates or quantities, or until withdrawn by the sponsoring military department and/or agency or USD(A) (DoDI 4410.3).
- End item components that support the DoD MUL items shall be assigned a priority equal to that of the end item in which the industrial item shall be incorporated physically, i.e., industrial preparedness planning list components (DoDI 4410.3).

8. DISCUSSION

Some of the most expansive powers available in time of emergency are contained in the Defense Production Act of 1950. In addition to specific authorities, such as the power to establish a system of priorities and allocations, the Act grants general authority to provide financial assistance to promote expanded productive capacity and supply; to conduct emergency preparedness and mobilization planning; to allocate strategic and critical materials (except for gasoline) in the civilian market; to create new Government agencies; to establish voluntary agreements; to provide for dispersal of Govern-

facilities; and to issue regulations to carry out the purposes of the Act. For the most part, these authorities are available on a day-to-day basis, and require no finding of national emergency before they can be used.

Three titles of the Defense Production Act (DPA) are especially pertinent to industrial preparedness:

- Title I of the Defense Production Act authorizes a priorities and allocations system
- Title III of the Act contains authorities for financial assistance to expand defense productive capacity and supply
- Title VII provides for the establishment of voluntary agreements to enhance preparedness and to increase production capacity.

Priorities and Allocations – Even in a peacetime economy, demand for some materials or components can occasionally exceed supply. The problem worsens during most emergency situations as demand increases more rapidly than supply. To ensure the supply of resources necessary to defense production, Congress authorized a priority control system in Title I of the Defense Production Act of 1950.

Title I authorizes the President to require priority performance of defense contracts or orders and to allocate scarce and critical materials to avoid significant market disruptions. This is done through the Defense Priorities and Allocations System (DPAS).

The DPAS operates routinely during peacetime with the objectives of:

- Keeping national defense programs on schedule by giving priority to defense agencies and prime contractors and their lower-tier subcontractors and suppliers for procurement of products and materials
- Providing for orderly allocation of certain key materials to defense contractors
- Maintaining in peacetime an administrative process for rapid expansion/mobilization of the country's economic resources in emergencies
- Minimizing the adverse impacts of the defense priority programs on normal commerce.

Assignment of priority ratings to contracts or orders is mandatory under DPAS for key defense programs. The ratings originate in DoD or an associated agency and require priority performance by contractors on rated items.

Under the DPAS, the Department of Commerce can provide Special Priorities Assistance (SPA) to programs that are having special difficulties in meeting program schedules. The SPA program is viewed by many civil agency personnel as the linchpin of the industrial mobilization system. They assume that the accumulation of SPA requests would suggest the need for remedial actions, such as expanding the list of controlled materials, releasing materials from the stockpile, increasing control over the civilian economy, or otherwise intervening in defense or commercial production.

Expansion of Productive Capacity – The authorities in Title III of the DPA contain important financial instruments to expand productive capacity and supply to meet the needs of national defense. These authorities provide a means for incentivizing exploration, development, mining, refining and processing, production, substitution, and stockpiling, all of which are germane to industrial preparedness. The primary instruments are purchases/purchase agreements, loan guarantees, and loans. Other Title III instruments to expand defense industrial capacity include installation of Government-owned equipment and grants for exploration.

During and immediately after the Korean Conflict, Title III authorities were used extensively. Nearly $9 billion in new capacity was created at a net cost to the government of under $1 billion. Thousands of transactions were carried out and major assistance was provided to industries such as titanium, nickel, aluminum, machine tools, and copper.

Until 1974, "borrowing agencies" seeking to support Title III projects could tap a revolving fund, capitalized in excess of $2 billion, which had been established within the Department of the Treasury. The only "up-front" cost to the Government from these projects was the "probable ultimate net cost," a sum that could be considerably smaller than the total amount guaranteed. Materials purchased through the program were generally placed in the Defense Production Act Inventory and were eventually sold or transferred to the National Defense Stockpile, thus increasing stockpile holdings.

Title III activity was reduced significantly after the 1950s and by 1974, the Title III revolving fund was exhausted, primarily due to interest charges accumulated by borrowing agencies. Efforts to revive Title III were made in the late 1970s and early 1980s , and major Title III funding was finally restored in 1985. Today's Title III program is more limited than the Korean Conflict era program. The program's scope has been considerably narrowed on two separate occasions. In 1974, in an an effort to restrain "back-door" appropriations, Congress repealed the Title III borrowing authority and, instead, required annual appropriations. In 1984, Congress amended Title III of the Act in several important respects. It established new thresholds and criteria for Title III funding arrangements.

DoD may now enter into Title III arrangements — loans, loan guarantees, and purchase agreements — for amounts less than $25 million without advance authorization. Amounts over $25 million will now have to be separately authorized by Congress. (Current Title III procedures are spelled out in more detail in discussion 2.4.1)

The primary objective of the current Title III program is to meet peacetime needs. Enhancing mobilization capability is a secondary objective.

Title III provisions cannot be used to meet immediate need for increased production in times of surge or mobilization, unless those provisions are initiated in peacetime to improve the posture of the industrial base and ready it for emergency production. The funding and approval process established by the Congress is too lengthy to begin on Surge or Mobilization Day and expect a fast response. Moreover, even if Title III projects were quickly approved, additional materials could not be produced until several months into the emergency because of the lead times associated with establishing the new capacity. For these reasons, attention must be paid to creating and maintaining a healthy defense industrial base in peacetime, surge and mobilization. Needs must be identified, and necessary legislative and administrative changes must be made early in a crisis to expedite the Title III process.

Standby and Voluntary Agreements – Title VII of the DPA provides for making voluntary agreements to enhance preparedness and to increase production capacity. Participants in agreements obtain limited grants of antitrust immunity for cooperative activities. Voluntary agreements have been used to expedite production by allowing exchange of information on production processes, new technological breakthroughs, and other information needed to promote conversion, standardization, or improved production techniques. Especially under present planning assumptions, which emphasize increased planning input from industry, the voluntary agreement could help solve some industrial base problems. In peacetime, agreements could be used to familiarize industry and labor unions with planning assumptions and requirements, and to permit industry representatives to discuss and solve production bottlenecks. In a crisis, they could also be used to:

- Permit improved scheduling of production and maintenance activities
- Expedite conversion of new contractors
- Permit exchange of technical data
- Rapidly transmit new production requirements
- Identify available sources of capacity
- Resolve production bottlenecks.

Title VII provisions will not affect the production capability of the industrial base in the critical period immediately following a decision to surge or mobilize unless voluntary agreements are in force prior to that decision. When compared to some other alternatives, their use is relatively inexpensive.

Standby agreements, like voluntary agreements, must be developed prior to a crisis to be effective. A standby agreement is a contractual commitment by a private firm to provide specific goods or services or to change normal operating practices at the sole option of the Government to help satisfy increased requirements for those goods and services resulting from substantially expanded peacetime military needs or an emergency.

The primary purpose of a standby agreement is to provide a more rapid and effective response to a civil or military emergency by bringing to bear commercial and industrial resources to satisfy substantially increased requirements for goods and services. The more rapid and effective response can be achieved through several means to solve emergency issues:

- Activation of a standby agreement can eliminate the administrative lead time associated with Government contracting
- Planning associated with a standby agreement can reduce or eliminate the time needed to identify emergency requirements for goods and services
- Enhanced (standby) capabilities created in conjunction with a standby agreement can reduce or eliminate the time that would generally be associated with a firm's providing greater or different goods and services than normal
- Finally, the planning generally found in a standby agreement program can serve as a means to orchestrate an emergency response and, thereby, reduce the inefficiencies that might otherwise result from ad hoc emergency actions.

A standby agreement can also provide a cost-effective alternative to some preparedness investments. In essence, commercial and industrial resources or improved responsiveness obtained through a standby agreement can avoid the need for comparable Government resources or investments in standby capacity. Therefore, the Government need not purchase and maintain some of the resources it would otherwise require to ensure a desired level of emergency preparedness. Because these resources would be needed only during emergency situations, their purchase and maintenance by the Government would represent a very expensive form of insurance.

By relying on commercial and industrial resources to meet part of this insurance need, the Government can reduce its cost greatly. Except in cases where the Government pays to enhance the private resources, the cost of a standby agreement is nominal, and even when enhancement expenditures are involved, the cost is only a small fraction of that associated with outright purchase and maintenance of comparable resources by the Government.

Because they entail relatively little cost, standby agreements can also provide greater flexibility of response. Rather than being locked into inventories of items that are likely to become obsolete, the Government can access the changing resources available in the private sector. Commercial and industrial firms who offer their resources through standby agreements generally upgrade their capabilities periodically to retain their economic and technological competitiveness.

The impact of industrial impediments can be reduced by selecting from a variety of uses served by standby agreements to:

- Accelerate delivery of items currently in procurement
- Increase the number of items currently in procurement
- Convert capacity to production of essential items
- Modify existing civilian items for military uses
- Use commercial resources for military or other emergency purposes
- Commit to purchase items to encourage increased production in anticipation of increased industrial need for these items
- Expand capacity for essential items (e.g., standby agreements with a manufacturer, a construction company, a real estate holder, and other appropriate parties to build or expand a factory)
- Modify product designs to facilitate production (e.g., a standby agreement to modify a civilian helicopter design for military applications)
- Modify production processes to reduce bottlenecks (e.g., a standby agreement to relax testing procedures to reduce required testing time)
- Refurbish items for military or industrial uses (e.g., a standby agreement with a shipyard)
- Share tooling for essential items (e.g., a standby agreement with forging companies).

This list can undoubtedly be expanded.

A specific example of a standby agreement that was successfully used in the past is the educational order.* Educational orders were employed between 1939 and 1941 as a means to prepare manufacturing companies engaged in commercial work for conversion to production of essential military items in the event of war. Under an educational order contract, a commercial company acquired standby equipment and tooling needed to augment its existing capabilities to produce a given military item, created a plan to convert its capabilities to production of that item, and produced several of the items to gain actual experience in its manufacture.

In cases where a company received some education prior to full-scale production, it is estimated that the lead time for achieving full-scale production was reduced by 4 to 12 months. Educational orders could similarly be used to facilitize and train new producers, complete necessary administrative and product qualification approvals, or test the feasibility of producing modified "mobilization designs."

*For further discussion of educational orders see Winslow, P.R., et al., "Options and Cost of Improving Industrial Responsiveness: Approved Standby Agreement Report and Systems Model" (The Analytic Sciences Corporation, TR-5142-4, 1985)

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 2.4.1
VERSION: ORIGINAL
DATE: 20 JUNE 1988

1. TOPIC

Using the Defense Production Act (DPA): Title III (Expansion of Productive Capacity and Supply)

2. TOPIC SUMMARY

- ***Because of the long lead times associated with implementing Title III projects (including DoD and Congressional approval, budgeting and funding, project structuring, contracting actions, and execution), legislative and administrative changes may be required to permit expedited use of Title III in emergencies.***
- ***An ongoing needs assessment is essential to the effective use of Title III in peacetime and under mobilization conditions. Needs may include production capacity for new, high-technology materials; domestic capacity to reduce or eliminate foreign dependencies or vulnerabilities; or expanded capacity to meet mobilization requirements.***

3. REFERENCES

—Defense Production Act of 1950 (50 U.S.C. App. 2093)

4. POINTS OF CONTACT

- See Appendix A

5. ABBREVIATIONS

DLA	Defense Logistics Agency
DPA	Defense Production Act
GFM	Government Furnished Material
ODUSD(I&IP)	Office of the Deputy Under Secretary of Defense for Industrial and International Programs
OMB	Office of Management and Budget
RFP	Request for Proposal
TOA	Total Obligational Authority

6. DEFINITIONS

- ***DPA Title III*** provides for financial assistance for the expansion of productive capacity and supply. Forms of financial assistance authorized by the DPA are: (1) guarantees to financial institutions for financing primes/subs/other persons (Section 301); (2) loans and loan guarantees to private businesses including not for profit research corporations (Section 302); and (3) purchases of or commitments to purchase metals, minerals, and other materials for government use or resale, and encouragement of the exploration, development and mining of critical and strategic minerals, metals and materials (Section 303). By agreement of DoD and OMB, the current Title III program is limited to financial assistance authorized under Section 303.
- ***Materials*** are defined in the DPA to include raw materials, articles, commodities, products, supplies, components, technical information, and processes.
- ***Purchase Commitment*** is the Government's agreement to purchase a specified quantity of product meeting precise specifications and quality assurance criteria at a prenegotiated price.

7. POLICY

There is no formal policy currently in effect. At present, the Title III program is guided by Interim Operating Procedures issued by the Office of the Deputy Under Secretary of Defense for Industrial and International Programs (ODUSD(I&IP)). A DoD Directive and an Air Force Regulation addressing Title III policies, procedures, and responsibilities are in preparation.

8. DISCUSSION

The DPA Title III program has been active since 1985. The Air Force is Executive Agent for Title III and a Title III Program Office has been established within the Air Force Systems Command. The Program Office is located at Wright-Patterson AFB, OH. Policy and program direction are provided by a Title III Working Group and Steering Committee, each composed of OSD, Service, and DLA representatives.

Title III is a powerful tool that can be used by industrial specialists and others to create capacity for a

broad range of materials. These materials may include raw materials, articles, commodities, products, supplies, components, technical information, and processes. Title III incentives are useful in creating domestic sources for materials now purchased from off-shore and in encouraging early investment in capacity for advanced materials, for which a stable market has not yet developed.

DPA Title III authorizes a variety of financial incentives but the current program permits only purchases and purchase commitments, by agreement of DoD and OMB. (A broader range of Title III incentives may be available in an emergency.) Purchase commitments constitute an agreement by the Government to purchase specified quantities of material, meeting agreed-upon specifications and quality assurance criteria at a pre-negotiated price. The guarantee price is based on the cost to produce and the anticipated market price at the time of delivery. Thus, Title III purchase commitments encourage the private sector to invest in new capacity by providing a guaranteed market for materials produced over the life of the Title III contract. The new capacity is expected to be commercially viable after the Title III quantities have been produced.

Title III projects originate within the Services and DLA and each new project must have a Service/DLA technical sponsor. Each year, ODUSD(I&IP) issues a Title III project submission call to the Services. Service and DLA Title III action officers ensure that the call notice is distributed to individuals in labs and development and acquisition activities who may be interested in sponsoring Title III projects. These potential technical sponsors develop brief proposals in response to project call. The proposals describe the project, justify the need, identify end items and military services benefited, provide an evaluation of alternatives, propose a preliminary purchase commitment concept, and provide initial funding estimates. The proposals are screened and consolidated by the Services and DLA and forwarded to the Title III Program Office, through ODUSD(I&IP), for evaluation.

The Program Office evaluates each proposal on the basis of three sets of criteria. The first set of criteria is required by law. The DPA states that for each new project, the President must certify to Congress that:

- The mineral, metal, or material is essential to the national defense
- Without Title III, U.S. industry cannot reasonably be expected to provide the capability in a timely manner
- Title III is the most cost-effective, expedient and practical method for meeting the need
- The United States national defense demand for the material is equal to, or greater than, the output of domestic industrial capability that is available for national defense, including the output to be established through Title III.

(The requirement for this Presidential determination may be waived during periods of declared national emergency.)

The second set of criteria was developed by DoD to minimize project risk. The DoD criteria include the following:

- The project must be accomplished through a purchase or purchase commitment only (DoD/OMB agreement)
- The material must be used by more than one Service
- The product of the Title III project must be identified in a specification agreed to by the U.S. Government and the contractor prior to contract award and the product must meet the specification.

All projects that meet these DPA and DoD criteria are eligible for Title III funding. However, because of budget constraints, projects are ranked according to a third set of criteria. These include such factors as commercial viability after the guarantee, national defense benefits, and criticality to defense programs.

Following the evaluation, the Program Office submits its recommendations on candidate projects to the Title III Working Group and Steering Committee for approval. The Steering Committee reviews the recommendations to ensure that Service (and particularly multi-Service) needs are being met. More detailed proposals are then prepared for approved projects.

Once approval is received, project funding is incorporated into the DoD budget and forwarded to Congress. Technical advocacy by ODUSD(I&IP), the Title III Program Office, and technical sponsors continues throughout the DoD and Congressional budget processes. Authorization for DPA Title III is renewed every 2-3 years, while Title III funds are appropriated annually in the DoD Appropriations Bill. Individual projects are funded through OSD appropriations and are over and above the TOA of the submitting Service/Agency.

Project structuring by the Title III Program Office and technical sponsor occurs after budget authority has been received. A financial analysis is performed to establish the guarantee price, the product specification is developed, and a business strategy is prepared. Potential contractors' interest and qualifications are sought through a Commerce

Business Daily announcement; a Statement of Work that addresses both technical and business aspects of the project is prepared; a draft RFP is developed; an RFP conference is held; and site visits to potential contractors may be conducted to better understand the technical aspects of the production process involved and to examine contractor's capabilities with respect to the production of the material.

Before a Title III contract can be executed, the President must certify to Congress that all DPA criteria have been met. After Congressional notification, candidate projects are subject to a 60–day waiting period prior to contract award. This waiting period is a DPA requirement.

Once the Congressional notification period is satisfied and funds are appropriated and allocated by OSD, the Title III Program Office, with the support of technical sponsors, completes all contracting actions. Project execution involves the preparation and issuance of a formal RFP, evaluation of contractor proposals, source selection, and contract award.

Project administration includes contract management and oversight from contract award through material qualification/disposition and contract closeout.

Title III projects will normally be structured as multiphased efforts. Phase I involves the purchase of small quantities of material for qualification. Qualification of the materials at the engineering laboratory level may be performed by the Title III contractor or by other DoD primes, subcontractors and vendors, who may also be involved in the qualification of Title III materials producers. Phase II and any subsequent phases provide purchase guarantees that ensure that the capability is expanded and maintained.

The Title III program directly purchases qualification phase materials, but generally will not take ownership title to materials produced during the purchase commitment phase. There are three alternatives for the disposition of these materials:

- The material may be purchased by contractors for use in DoD weapons systems. Program managers promote this alternative by ensuring that Title III delivery schedules and specifications meet acquisition program requirements and by inserting clauses in their contracts that stipulate that domestic sources must be used and that materials purchased must meet Title III specifications
- The material may be purchased directly by the Government and provided to contractors as Government–Furnished Material (GFM)
- The Title III contractor may sell the material commercially.

APPENDIX A
TITLE III POINTS OF CONTACT

TITLE III PROGRAM OFFICE

Attn: Mr. Jeff Smith, AFSC/PLMM
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DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 2.5

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1. TOPIC

Evaluating Foreign Dependency Issues

2. TOPIC SUMMARY

- ***If foreign dependency is to be controlled, foreign dependency issues must be managed as a part of the everyday acquisition strategy and procurement process.***
- ***The restrictive definition of the industrial base assumes a lower reliability for production sources outside the North American Defense Industrial Base.***
- ***DoD generally does not have good visibility below the first subcontractor level and cannot properly evaluate the impact of foreign sourcing decisions without this visibility.***

3. REFERENCES

—DoDD 4005.1, "DoD Industrial Preparedness Program"

—DoDI 4005.3, "Industrial Preparedness Planning"

—DoD 4005.3-M, "Industrial Preparedness Planning Manual"

—DoDD 4245.6, " Defense Production Management"

—DoDD 5000.1, "Major and Non-Major Defense Acquisition Programs"

—DoDI 5000.2, "Defense Acquisition Program Procedures"

—DoDI 5000.38, "Production Readiness Reviews"

—FAR 6.202, "Establishing or Maintaining Alternative Sources"

—FAR 6.302-3, "Industrial Mobilization; or Engineering, Development, or Research Capability"

4. POINTS OF CONTACT

- Defense Contracting Officers
- Competition Advocates
- Industrial Specialists

5. ABBREVIATIONS

MANTECH	Manufacturing Technology
NATO	North Atlantic Treaty Organization
PM	Program Manager
R&D	Research and Development
VHSIC	Very High-Speed Integrated Circuits

6. DEFINITIONS

- ***Industrial Base*** is that part of the total privately-owned and government-owned industrial production in the United States and Canada that is or shall be made available in an emergency for the manufacture of items required by the U.S. Armed Forces and selected allies.
- ***Foreign Source*** is any source of supply or manufacture outside the continental United States or Canada.
- ***Foreign Dependency*** is an immediate, serious logistics support problem affecting the combat capability of the United States caused by the unavailability of a foreign sourced item.

7. POLICY

- DoD components will limit industrial preparedness planning to producers located in the U.S. and Canada (DoDI 4005.3).
- Planning will identify foreign dependency on items, components and/or materials that could impact on U.S. and Canadian producers during surge or mobilization. These dependencies will be reported and briefed in the Production Base Analysis (DoDI 4005.3).
- DoD components shall limit industrial preparedness planning to producers located in the United States and Canada; however, planning should identify foreign sources who are defense suppliers to planned U.S. and Canadian producers (DoD 4005.3-M).
- Mobilization requirements shall be a factor considered in evaluating opportunities for international cooperation (DoDD 5000.1).

- A strong industrial base is essential for a strong defense...the impact of DoD acquisition on the industrial base must also be considered both for the near term and long range implications (DoDD 5000.1).
- A manufacturing strategy shall be developed as a part of the program acquisition strategy. Manufacturing voids, deficiencies, and dependencies on critical foreign source materials shall be addressed concurrently with concept demonstration and validation through the use of manufacturing technology projects or other means (DoDD 4245.6).

8. DISCUSSION

In order to avoid unacceptable dependencies, all acquisition/procurement strategies must consider dependence on foreign manufacturing content as a decisionmaking criterion equal to cost, quality, and schedule. This means that the potential foreign content of a weapon system must be identified early in the development phase, and evaluated for its impact on meeting production goals. Actions to reduce or eliminate foreign dependencies can be identified and accomplished most effectively at this point in the weapon's life cycle.

Current directives already require the Milestone II and III acquisition reviews to evaluate surge and mobilization capability. The development of the manufacturing strategy must also be clearly required to address dependency on foreign sources. It would be a relatively small matter to place major emphasis on foreign dependency as it impacts on the production risk assessment for all System Acquisition Reviews and Production Readiness Reviews.

The pressure exerted on DoD to conduct full and open competition, in many instances, has been taken as a mandate to remove distinctions that consider the need for domestic production to ensure a wartime production capacity. Yet, the Federal Acquisition Regulation provides for restricting competition when necessary to preserve the defense mobilization base. This task has not been recognized by procurement officers as an essential one. They have not been provided with clear criteria or guidance regarding when and how to use this authority. Every procurement of a Critical Items List weapon system or component should be reviewed for its impact on both the short-term and long-term ability of the domestic industrial base to provide critical items.

The absence of foreign dependency analysis may be attributed to three basic causes: 1) the lack of viable production information on which to base decisions 2) the lack of an adequate analysis methodology to know when a solution is required, and to select the best solution and 3) the lack of specific guidance and monitoring by PMs and Service headquarters regarding when and how to seek foreign dependency solutions.

Three steps are required in the analytic process to address foreign dependency issues.

Step 1 ***Determine whether foreign manufacturing sources are supporting the production of a specified end item.***

This is simply the identification of assemblies, components, parts, and materials that are a part of the manufacturing process. This step can be accomplished according to the procedure discussed in 9.1, Data Collection Methods.

Step 2 ***Determine if any of the identified foreign-manufactured components could prevent an end item from reaching its production goals.***

The Program Manager should address the foreign dependency issue from a peacetime, surge and mobilization perspective. During this step, each foreign-sourced component must be evaluated to determine the impact of its potential loss to the manufacturing process.

Step 3 ***Determine if DoD guidance/action is necessary to reduce/eliminate foreign dependency.***

Steps one and two are dependent on the manufacturer for data. Step three is a DoD responsibility. During this stage, a PM would evaluate each foreign dependency identified in step two and conduct a risk/benefit analysis to determine if any corrective actions are necessary.

It is necessary to recognize that there are both long-term and short-term corrective actions. Changes such as instituting new R&D programs to reduce vulnerability are clearly long-term, whereas creating a one-year stockpile of critical components for a supply that could be interrupted is a short-term effort. However, both of these actions require funding during peacetime if they are to have any impact for surge and mobilization contingencies.

Any set of corrective actions should be tailored to an individual product. For example, a new R&D program may be required for one system, while a stockpiling program may work best for another. Universal solutions are likely to be both inefficient and ineffective.

A wide variety of options might be selected for individual products. Specifically, the following options should be considered:

- Establishment of visibility and responsibility
- Stockpiling of vulnerable components of critical weapon systems
- Planning for substitution

- Redesign of systems to eliminate dependency
- Targeting DoD investments
- Specifying procurement and/or acquisition policy changes
- Supporting foreign direct investment in the U.S.
- Using the provisions of the Defense Production Act
- Purchasing design rights for all foreign sole sourced items
- Invoking Exception 3 to the Competition in Contracting Act.

Establishing Visibility and Responsibility – Any data system for this purpose should build on an already existing data system (since there are clearly already too many) and should operate on a principle of management-by-exception. Otherwise the data requirements would be prohibitive. Additionally, because most DoD information is developed on individual weapon systems (from the program office on through its industrial structure), visibility into issues of critical component vulnerability to foreign sources requires data that is both vertically available (i.e. by weapon system) and horizontally available (i.e., across weapon systems), so that both the military vulnerability and the overall impact of corrective actions can be assessed for individual components.

Ultimately, there is one additional requirement beyond that associated with visibility and organizational responsibility, namely, that of additional dollars to address the dependency problem. However, when the specific issues are properly identified, the dollars for the selective actions should be relatively small and affordable within service budgets and, in many cases, within individual program budgets.

Stockpiling Vulnerable Components of Critical Weapon Systems – There are a variety of approaches to the stockpiling of critical components. Three approaches are:

- A rolling inventory
- A surge capability
- A life-of-buy procurement.

Each of these alternatives has been successfully tried in the past. Their principal disadvantage is that the money is paid in advance, with the risk that the components may become obsolete during the life of the product. Nonetheless, the dollars involved in a few components of a major weapon system are certainly a very small percentage of the costs; and the percent obsolescence is even smaller. Thus, the early buying of parts probably will pay for itself, since the parts will be used later on, the cost of inflation can be avoided, and a reduced unit cost (due to the higher volume of purchase at the time of the early procurement) may be obtained.

- Rolling Inventory — For the rolling inventory approach, one might buy one year or 18 months worth of critical components in advance — on all sole-source, off-shore items that are for current, critical weapon system production. While the initial buys would then essentially double the order (e.g., two years instead of one) from that point on the system would work normally; but orders would always be required one year in advance.
- Stockpiling for Surge — The second approach to stockpiling, i.e., buying enough to cover potential surge needs in addition to peacetime needs, would be the same as in the rolling inventory approach, but at larger levels of procurement, depending upon the planned surge or mobilization requirement.
- A Life-of-Buy Procurement — The life-of-buy approach goes even further, and assures that enough parts have been brought for the complete planned production quantities and logistics support needs. This clearly raises the total up-front cost as well as the risk of obsolescence, but it assures that any interruption of supply for any length of time, can be easily handled. In fact, it is the common technique used today by the Defense Electronics Supply Center on parts that are going out of production (an obvious example of interruption of supply). Today there are tens of millions of dollars approved by Congress for "buy outs" of electronic parts that will not be available in the future.

Thus, an individual program has the choice of stockpiling, at a variety of levels, critical parts that have a potential for future shortages.

Planning for Substitution – Under certain circumstances, planning is necessary to ensure that, if the supply of critical components were interrupted for extended periods, substitute components could be rapidly inserted (even if it meant a slight degradation in performance, or life, of the system). For example, the shelf-life for many expendable items would not have as much significance under wartime conditions (in contrast to long peacetime conditions) so a shorter-life substitute may be perfectly acceptable. Thus, at least three approaches appear attractive for planning considerations:

- Use of non-MIL SPEC devices
- Use of derated MIL SPEC devices
- Reverse engineering of foreign components.

If plans were made for the substitution of either non-MIL SPEC devices or derated MIL SPEC devices, then the change could be made relatively quickly in the event of a supply interruption. Similarly, if one had done enough "reverse engineering" to be able to come up with an approximately equivalent device, then it too could be substituted in a relatively short period of time. (It might be noted that the Air Force, at its Sacramento, California facility, is now doing reverse engineering and emulation on some selected electronics components.) Obviously, these approaches take some investment, either for the planning or the reverse engineering, but the cost would be relatively small.

Redesigning Systems to Eliminate Dependency - For some critical weapon systems it may be highly desirable to redesign the weapon system in order to eliminate the sole-source critical components from offshore. Not only does this increase the engineering costs, but production of the item may result in either reduced performance or increased production costs. However, in selected applications the reduction in dependency on foreign suppliers may be worth these increased costs. A less severe form of this action would involve simply redesigning an item and testing the design, so that it is available as an alternative if the foreign source becomes unavailable at some future time.

Targeted DoD Investment - With this approach the Government makes significant investments in R&D or manufacturing areas where U.S. firms have found it uneconomical to invest. An example of this approach is the multimillion dollar DoD investment in the area of Very High Speed Integrated Circuits (VHSIC). In this area, there was an insufficient commercial market, and the investment requirements were very high, yet the defense need was very real. Thus, the Government made a significant investment in R&D on both the components themselves and on the manufacturing process. In this case, DoD chose to limit the bidders to domestic sources only, and created a potential for unique U.S. capability in this area. It is possible with this approach that, after the R&D has been proved successful, U.S. firms will still be unable to compete economically, and production of such critical components might still end up off-shore. Thus, there may be a future need for Government to invest in critical manufacturing capital equipment in areas where it is uneconomical for U.S. firms to invest.

Where low-cost, off-shore availability of components removes the business incentive to make a part here, or to provide a competitive U.S. production base, DoD must provide an incentive. The military Production Engineering Program with its emphasis on producibility engineering and planning, and, in particular, the Manufacturing Technology programs of the three Services, can be a vehicle to provide such resources.

These programs fund discrete projects that result in an improved, cost-effective production capability at the site of a specific vendor. "MANTECH" programs are enabling programs that typically seek to achieve cost reductions. The objective here is to achieve cost reduction for domestic manufacturers to avoid the need for offshore procurement.

The program may be used to solve two of the types of problems contributing to foreign dependency:

- Lack of an on-shore production base, as is the case for numerous electronic components
- Lack of an environmentally safe production process.

MANTECH programs have also been funded to affect technology transfer and to expand the number of domestic manufacturers capable of providing a product or process. One of the basic thrusts of the program has always been to make them generic rather than end-item specific. Thus, successful generic projects would be amenable to multiple application end uses.

A relatively small investment in process modernization or automation through establishment of a MANTECH program can lead to a substantial reduction in product costs from domestic manufacturers, and, therefore, to decreased dependency, for carefully selected opportunities. Even if the project resulted only in reducing the cost disadvantage, e.g., from ten to one down to two to one, it could markedly alter the cost consideration equation for the PM or contracting officer who has to decide whether to buy the cheaper part offshore, or have it made by a U.S. manufacturer at a higher cost.

Specifying Procurement and/or Acquisition Policy Changes - As noted elsewhere, policies governing specific criteria for determining an acceptable level of dependency or risk are not provided to procurement and development staff. However, such policies could be initiated. Examples of five such policies are:

- A delivery commitment for foreign-sourced components
- A requirement for at least one U.S. source for critical components on critical systems
- A requirement placed on system contractors to guarantee component supply
- A requirement that the DoD production release decision (Milestone III) include an impact analysis and a contingency plan for sole-sourced, foreign critical components
- A shift to "common buying" for critical components (so that the decision is removed from

individual weapon systems and aggregated to a higher level).

Each of these approaches has some obvious costs and potential benefits that might be achieved on a selective basis. The danger is that, if Congress passed a law requiring the buying of all defense components domestically, DoD costs would increase dramatically, performance of weapon systems might decrease significantly, and there would be a risk of alienating our allies. Therefore, any such change must be done gradually and selectively.

Obtaining a delivery commitment on foreign-sourced components would, at least, increase the cost and the risk to foreign governments and/or companies associated with stopping deliveries.

Requiring that at least one U.S. source be available for any sole-sourced components would entail, for example, obtaining U.S. license and production technology for any component that we choose to buy off-shore, recognizing the increased cost associated with such licenses and the possibility that the component may never be required to be made domestically.

Placing the responsibility for guaranteeing component supply on the weapon systems contractor would encourage him to go to U.S. suppliers under normal market conditions, and would encourage him to stockpile critical foreign-sourced components. The form of the guarantee is a problem, since the costs could become prohibitive under some circumstances. Nonetheless, a guarantee might offer some added incentives to address, or at least make visible, the foreign-dependency issue.

Requiring the dependency issue to be addressed at the Milestone II and III decision points would at least help to gain added visibility on an individual weapon system. Requiring an impact analysis, as well as a plan for dealing with potential contingencies, would perhaps cause the program manager to select some of the above-noted options for his individual weapon system.

A more dramatic change would be for the DoD to shift to a "common buying" approach for its critical components. This means that program offices could "pool" their demands for such components, and the components would be bought in some common form. Interestingly, this is exactly the technique that large industrial firms use in pooling the requirements of their various divisions for high-cost, critical components (e.g., microelectronics). Through combining the demands of each of the separate divisions (which might be relatively small on their own) the large firm is able to increase its "buying power" and to establish lower prices from multiple sources. The military program offices cannot take advantage of this market power at present.

Supporting Foreign Direct Investment in the U.S. - Direct investment abroad is a double-edged sword. Foreign direct investment by U.S. nationals is the source of most of the dependencies associated with electronic components and parts. At the same time, however, direct investment by foreign nationals into the U.S. has been responsible for the amelioration of what would otherwise be a much worse situation. Examples include Kyocera's San Diego facility, which produces some of their ceramic packages; and Schott, of Germany, and Hoya, of Japan, with facilities in the U.S. that ultimately provide optical quality glass for some of our most sophisticated weapons. In another important area for mobilization planners, Japanese machine tool builders are breathing life into their American counterparts through joint ventures and other complementary activities.

U.S. Government support for foreign direct investment in the U.S. is an apparently low cost alternative both for identified foreign dependencies and for industrial sectors potential dependencies. It is especially suited for dependencies that derive from the superior technologies and costs associated with some foreign procurements. Many foreign firms already have U.S. subsidiaries, and others are considering acquiring them. DoD could probably exploit and encourage this trend strictly through the structuring of procurements to favor the pre-existing market factors that have led to these previous investments. Since the net economic costs of this alternative appear to be low (perhaps negative) taking appropriate steps in this direction is recommended.

Using the Provisions of the Defense Production Act - *Establish Standby and Voluntary Agreements with Defense Contractors* - Standby and voluntary agreements (see Section 2.4) provide a relatively inexpensive mechanism to prepare for a potential loss of foreign suppliers. Five possible uses to alleviate foreign dependencies are listed below:

- Surge option clauses could be negotiated with alternate domestic producers. This would make particular sense in cases where domestic and foreign producers split a current procurement
- If it were impracticable to obtain technical data in peacetime on a proprietary foreign-produced item, the Government could negotiate a standby agreement to provide them under specified conditions when the foreign source cannot guarantee his supply. Under a voluntary agreement, the new domestic sources could also commit to return the data and leave the business area (a possible illegal restraint of trade without the antitrust protection) upon

resumption of normal conditions, if the loss of a business "edge" were a further concern

- Under a voluntary agreement, current foreign producers could agree to provide technical assistance to help new domestic sources achieve rapid production
- Educational orders, a form of standby agreement, could be used as a relatively inexpensive way to facilitize, train, and qualify new domestic sources
- Voluntary agreements for domestic production of foreign-dependency affected systems could help new producers achieve rapid production or identify and resolve bottlenecks caused by foreign source interruption.

Expand Production Capacity Using Title III of the Defense Production Act (DPA) - Title III (see Sections 2.4 and 2.4.1) can be a valuable tool for establishing domestic capacity for some essential items that must otherwise be purchased from foreign manufacturers. Title III cannot be used to solve all foreign dependency problems. However, some applications are very well suited for this authority, by itself or in concert with other applications. DoD's commitment to buy a specified quantity of an item from a domestic source may induce a manufacturer to make a capital investment that he would not otherwise make.

Purchasing Design Rights for All Foreign Sole Sourced Items - This is an elementary precaution, which should be exercised in all procurements where foreign dependency is a possibility. The U.S. Government or its contractors should secure design rights to such items, contingent on nondelivery. In the case of vendors, design rights could be secured by the sale of a contingent license to manufacture in the event of nondelivery. Rights in data clauses are standard in existing Government contracts, although they are negotiable. As an incentive to foreign firms to negotiate such design rights, the cost of those rights should be included in the total cost of the system for evaluation purposes.

Vendors are concerned about their proprietary position, and are cautious about giving information to other industrial firms. Even the U.S. Government is sometimes suspected by foreign vendors of favoritism toward domestic firms. Nevertheless, secrecy agreements are a standard industrial feature and can be used in Government procurement. In at least one case, the ejection seat for the F-18, an item was changed from a subcontracted procurement to GFE, so that the foreign vendor, who was unwilling to release data rights to a commercial firm, would provide them to the U.S. Government.

This is a limited solution. Its principal impact will be to reduce the time required to establish a domestic replacement. It is most applicable to complex subsystems and systems, where design content is a major part of the value and where design time is a significant contributor to nonavailability. Its principal benefit is that it could provide for more rapid replacement of foreign sources after a cutoff without the additional cost of establishing a peacetime domestic second source.

This approach is not necessarily disruptive of current trade. It is more easily applied to new systems. Implementation is currently within the power of procurement officers.

Invoking Exception 3 to the Competition in Contracting Act, Where Necessary to Ensure a Domestic Production Base - Exception 3 can be used in a variety of ways to limit competition in order to maintain a domestic production base. Possible uses include:

- Establishing a split procurement. This option could be used to fine tune a general domestic procurement policy. In this case, it should be possible to find the precise division that best balances the needs of security and of savings for the procurement at hand (e.g., 80:20 instead of 50:50)
- Excluding foreign competition. DoD should provide guidelines as to when this approach is appropriate
- Directing procurement to a specified domestic source. This action would be indicated when a clear need exists to protect an existing, threatened industrial resource.

Proposed Actions For The Program Manager At The Different Program Milestones:

- Prior to Milestone I
  - Ensure that the acquisition strategy contains adequate considerations of the broad impact of foreign dependency. Special attention should be given to key industry areas
- Milestone I - Demonstration and Validation
  - Ensure that the manufacturing strategy identifies manufacturing voids, deficiencies, and dependencies on critical foreign-source materials and components
  - Identify further foreign dependency issues
  - Ensure that foreign dependency issues are given appropriate consideration in requests for proposals, source selection, and contracts

- Ensure that the following options, as a minimum, are considered for possible solution to the foreign dependency issues

  Stockpiling vulnerable components

  Creating on-shore capacity

  Substituting components

  Redesigning systems

- Milestone II - Full Scale Development
  - Ensure that foreign dependency concepts are developed as necessary for possible use to influence design
  - Analyze the sensitivity of foreign dependency and associated impacts on system design and system readiness and develop a risk assessment
  - Conduct cost-benefit tradeoffs in hardware characteristics, support concepts, and resource requirements to determine the best approach to reduce the foreign dependency impacts
  - Ensure that ILS foreign dependency considerations are given appropriate weight consideration in RFPs, source selection, and contracts
  - Ensure that an analysis of the interface between NATO standardization and interoperability requirements and foreign dependency are in ILS planning
  - Conduct assessment of the contractor's capabilities to meet surge and mobilization requirements to include foreign dependency impact
- Milestone III - Production and Deployment
  - Conduct an analysis and independent review to determine the remaining impacts of foreign dependency to meet the goals for peacetime readiness and wartime employment
  - Resolve outstanding foreign dependency issues to meet the support capability objectives, deployment and mobilization needs.

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

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1. TOPIC

Developing An Acquisition Strategy

2. INDUSTRIAL BASE ISSUES

- ***Acquisition strategies must address industrial responsiveness during surge and mobilization***

3. REFERENCES

—DoDD 5000.1, "Major and Non-Major Defense Acquisition Programs"

—DoDI 5000.2, "Defense Acquisition Program Procedures"

—DoD FAR Supplement, Part 7, "Acquisition Strategy"

—DSMC Acquisition Strategy Guide

4. POINTS OF CONTACT

- Contracting Officer
- Cognizant Functional Advisors

5. ABBREVIATIONS

DCP	Decision Coordinating Paper
MNS	Mission Need Statement
MS	Milestone
PM	Program Manager
SCP	System Concept Paper

6. DEFINITIONS

- ***Acquisition Strategy*** is the conceptual basis of the overall plan that a PM follows in program execution.
- ***Mobilization Acquisition Plan*** is the plan for transitioning a program from peacetime operations to that of wartime.

7. POLICY

- A primary goal in developing an acquisition strategy is to minimize the time it takes to satisfy the identified need consistent with common sense, sound business practices, and the basic management policies of DoDD 5000.1 (DoD 5000.1).
- Logistics supportability requirements, in the form of readiness goals and related design requirements and activities, shall be established early in the acquisition process and be considered in the formulation of the acquisition strategy. They shall receive emphasis comparable to that accorded to cost, schedule, and performance objectives and requirements (DoDD 5000.1).

8. DISCUSSION

The present DoD acquisition process is directed toward the successful development, production, and deployment of individual weapon systems. As such, both the philosophy and practice of system acquisition is oriented to peacetime operations and is reflected in many ways in the various acquisition policy documents. For example, the acquisition phases and the milestone decision points provide a framework to manage a weapon system from program inception through replacement. At no time, do the directives allow for a crisis which might call for employment, sustainment, or expansion of a fighting force. Yet at any point in an acquisition process the United States could make a political decision to increase security assistance to an allied nation, to actively support a client war, to engage in major force deployment activities as a show of force, or if the situation warrants, to enter into a protracted military conflict. If a program manager is truly responsive to national policies and objectives, he must continually be prepared to transition his weapon system from peacetime production to wartime (crisis) production.

Figure 3.1-1 illustrates this transition concept. The concept contains two separate responsibilities which the program manager should perform simultaneously. The first is to acquire and maintain a viable warm production base as a part of the peacetime acquisition. The current premise that war will not occur prior to system deployment can remain a valid assumption. Nevertheless, the PM must consciously evaluate the decisions and recommendations developed for each phase of the acquisition process for their eventual impact on mobilization potential. The PM should recognize

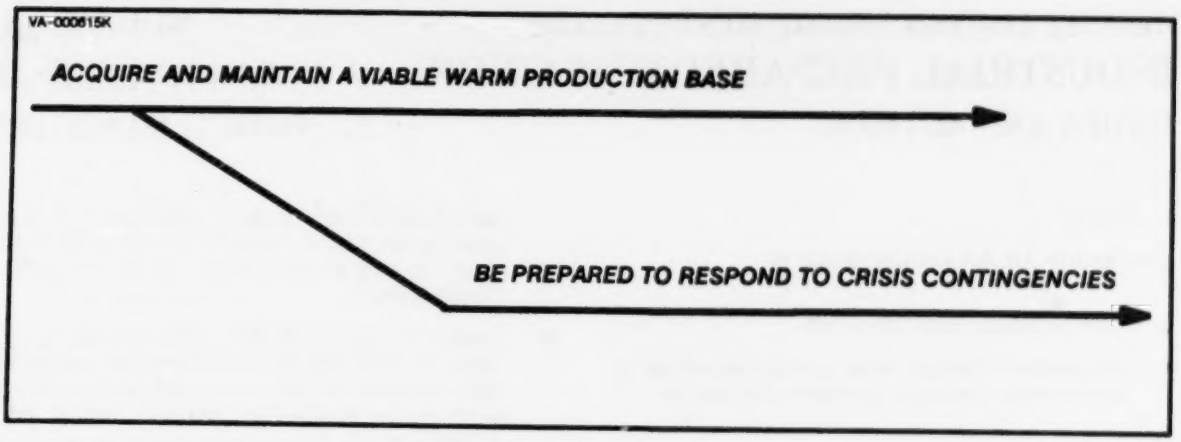

Figure 3.1-1 Transitioning From Peacetime To Crisis Production

that industrial mobilization can best be accomplished from a healthy warm production base. In most cases, an effective production base can be established without significantly deviating from the desired cost, schedule, and performance thresholds.

The second responsibility is to constantly be prepared to respond to crisis contingencies. If the PM is concerned about the strategic aspects of his program, then he must always know what he would do if a national crisis required his program to engage in surge or mobilization activities. This mobilization acquisition plan is program unique. Each program fits differently into its mission area and possesses different operational objectives. Each program also has its own interface with the industrial base which carries a specific set of capacity and leadtime bottlenecks.

The mobilization acquisition plan will change as the program moves through the acquisition cycle. As depicted in Figure 3.1-2, the fundamental question that the PM must ask himself is, "what will I do if war occurs before my program reaches the next milestone?"

Approaching Milestone I: At this point, the PM is working with a mission area need that responds to a general threat assessment. Given that a specific crisis has been identified, the PM should readdress the mission need analysis. Perhaps the performance requirements have changed. Certainly the threat has become much more defined from the standpoints of activity, capability, and likely reaction time. Based upon a new threat assessment, the PM should:

- Reevaluate the concept alternatives
- Determine if the acquisition process can be compressed or accelerated
- Issue concept development contract modifications as necessary.

It may be that an alternative to modify an existing weapon system or to use a commercially available item becomes a more viable short range choice than proceeding with a new development. In any case, there may be actions the PM can take to field an enhanced capability more quickly. Such actions will require the cooperation of many DoD agencies and can best be accomplished if DoD has established and coordinated the procedures for implementing a mobilization acquisition plan.

Approaching Milestone II: As the PM proceeds through the acquisition process, the flexibility to vary the concept rapidly decreases. However, regardless of the acquisition phase, a new threat assessment and a reevaluation of mission area requirements is a necessary precursor to any alternative course of action. If a concept or concepts have reached the demonstration/validation phase, the PM still has the option to revise the design specifications to make the item more producible and responsive to the unfolding crisis. It certainly is not too late to divert to other concept alternatives, but expediency may favor a more rapid transition to full scale development.

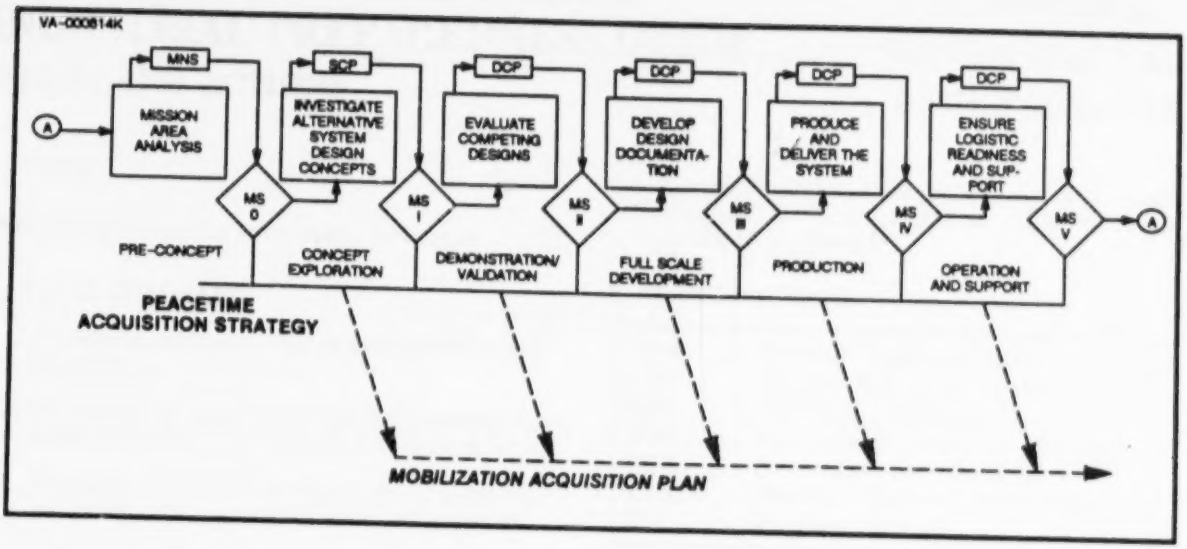

Figure 3.1-2 Evolutionary Mobilization Planning

Approaching Milestone III: By the time an acquisition reaches full scale development, the most likely decision is to transition directly to surge or mobilization production rates. By this time, surge and mobilization production targets should be available and be factored into the manufacturing strategy. If a transition plan is developed, the move to production can proceed more quickly and smoothly.

Approaching Milestones IV and V: Once production has begun, the movement to a mobilization environment should be easily accomplished. If appropriate contingency planning is in place, the procurement orders can be quickly processed and the manufacturing establishments notified to begin the acceleration process.

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 4.1

VERSION: ORIGINAL

DATE: 21 JUNE 1988

1. TOPIC

Developing Industrial Investment Strategies

2. TOPIC SUMMARY

- ***Investment strategies must be marketable to decisionmakers.***
- ***Investment strategies must clearly differentiate between peacetime production and crisis production.***
- ***Peacetime investment strategies should emphasize low production cost and minimal idle capacity.***
- ***Crisis investment strategies should emphasize timelines and benefit.***
- ***Surge and mobilization are not synonymous and each production environment has different assumptions and conditions which will result in different investment strategies.***
- ***Investment strategies must identify incremental investment modules that can be easily justified.***
- ***Investment strategies must be prioritized by pacing component or process.***

3. REFERENCES

—DoDI 4005.3, "Industrial Preparedness Production Planning Procedures"

—DoD 4005.3–M, "Industrial Preparedness Planning Manual"

—DSMC DoD Manufacturing Management Handbook for Program Managers

4. POINTS OF CONTACT

- Office of Industrial Base Assessment, Skyline Plaza, Suite 1406, 5203 Leesburg Pike, Falls Church, Va 22041-3466, (202) 756–2310
- Hq, U.S. Army Materiel Command; Attn: AMCPD-IM; 5001 Eisenhower Avenue; Alexandria, Va 22333; (202) 284–8224, (AV) 274–8224
- Secretary of the Air Force; SAF/AQCM; the Pentagon, Room 4C283; Washington, DC 20330–1000; (202) 697–5023
- Director, Defense Logistics Agency; Attn: DLA–PRS; Cameron Station; Alexandria, Va 22314; (AV) 284–6451.

5. ABBREVIATIONS

DLA	Defense Logistics Agency
DRB	Defense Resources Board
FSD	Full Scale Development
IPM	Industrial Prepredness Measures
PBA	Production Base Analysis
POM	Program Objective Memorandum
PM	Program Manager

6. DEFINITIONS

- ***Industrial Investment Strategy*** is a plan for acquiring production capability to satisfy a future requirement.
- ***Nonrecurring Investment*** is a one–time investment that is not expected to be repeated.
- ***Rolling Investment*** is a stockage of manufacturing materials and components maintained to support a surge production plan.

7. POLICY

- Each military department and DLA will prepare a Production Base Analysis (PBA) (DoDI 4005.3).
- The PBA will provide the basis for programming and budgeting of industrial preparedness measures (IPMs) including maintenance, modernization, and expansion of the industrial base, and for long range plans to sustain and improve the base (DoDI 4005.3).

8. DISCUSSION

In the past, industrial preparedness advocates have argued for the deliberate over–sizing of initial production facilities in order to provide surge capability. Although this concept of designing in idle capacity was accepted for many years, its supporters recognized several obvious deficiencies:

- Installing and maintaining idle capacity increases peacetime acquisition costs
- In a cost–conscious environment, excess capacity will be one of the first items cut to stay

within budget guidelines and funding authorizations

- The amount of additional capacity acquired in this manner is seldom sufficient to satisfy either surge or mobilization production requirements.

In the last few years, the issue of idle capacity has transcended the philosophical differences between the acquisition and industrial preparedness communities to become a regulatory prohibition. Specifically, the government is causing industry to divest itself of idle capacity by disallowing overhead costs for carrying and maintaining idle capacity.

Realizing that burying the cost of acquiring surge and mobilization capacity within the cost of producing the peacetime buy is both inefficient and ineffective, the industrial planner must find an alternative investment mechanism. As DoD seeks to integrate industrial preparedness more completely into the acquisition process, it must choose the counterintuitive approach of clearly differentiating between that minimum capital cost required to produce the peacetime buy and the additional augmenting investment that is required to attain the surge and mobilization production goals.

The remainder of this discussion will only cover the industrial preparedness investment strategy. Methods of evaluating the capitalization requirements for producing the peacetime buy are documented in Chapter 6 of the DoD Manufacturing Management Handbook and need not be repeated here.

The ingredients of any industrial preparedness investment strategy include:

- Distinct objectives against which success or failure can be measured
- Clearly understood assumptions and definitions
- A supportable rationale.

Investment Strategy Objectives should be established as a part of the Program Manager's Baseline (see Section 1.2). As depicted in Figure 4.1-1 these objectives should first appear in the Mission Need Statement and be stated as production goals and thresholds in the System Concept Paper Annex B for Milestone I. After validation, the contractors selected for full scale development should be contractually tasked to develop a crisis manufacturing plan which provides for a transition from peacetime production rates to surge or mobilization production rates. The crisis manufacturing plan would be accompanied by an investment strategy that clearly presents incremental investment modules suitable for sequential funding.

At Milestone III, the investment strategy should be evaluated as a part of the program review so that a

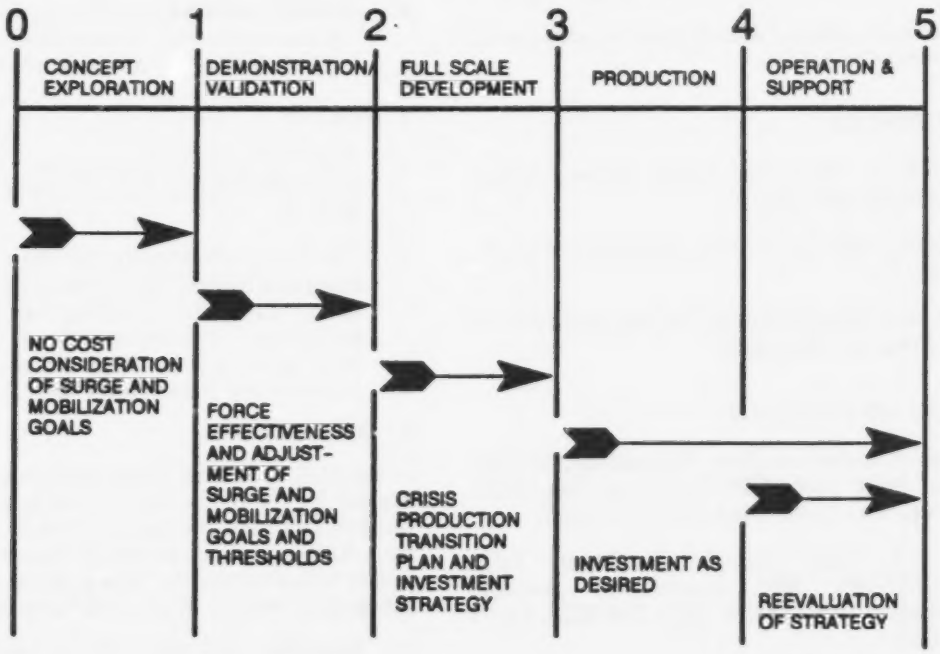

Figure 4.1-1 Industrial Preparedness Investment Considerations

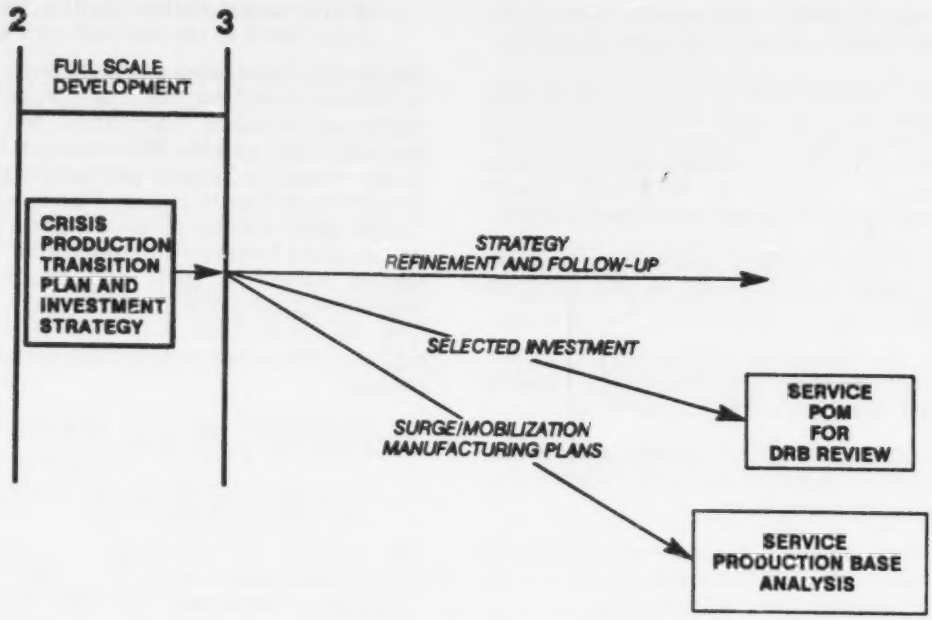

Figure 4.1-2 Investment Strategy Interfaces

decision to enter into production would carry with it a decision whether or not to invest in surge or mobilization capacity. As shown in Figure 4.1-2, a decision to proceed with production should also cause the investment strategy to be included in the appropriate production base analysis.

Following Milestone III, the investment strategy should be reviewed as a regular part of the POM process. This will provide a periodic opportunity for decisionmakers to reconsider investment decisions in light of the changing political and economic environment.

Assumptions and Definitions must be concisely laid out by the Government and clearly understood by manufacturers. One of the most significant obstacles to credible investment analysis is the failure of Government and industry to adequately communicate with one another. For the program manager who is concerned only about peacetime production, the assumptions are more easily understood. In most cases, they are the same assumptions that manufacturers use every day in conducting their normal business operations. However, once attention shifts to considerations of surge or mobilization, there is an increased requirement for firm structure and standard definition. Everyone involved in putting together a surge or mobilization investment strategy must adhere to a common format.

(1) ***Industrial Surge***: This discussion of industrial surge attempts to move from the current definition used by the industrial preparedness community to describe more fully the assumptions needed for the program manager to be able to develop a sound surge investment strategy.

As defined in the Industrial Preparedness Planning Manual (DoD 4005.3-M), surge is:

> The accelerated production, maintenance, and repair of selected items, and the expansion of logistic support services to meet contingencies short of a declared national emergency utilizing existing facilities and equipment. Only existing peacetime program priorities will be able to obtain materials, components, and other industrial resources necessary to support accelerated program requirements; however, increased emphasis may be placed on use of these existing authorities and priorities.

To summarize this definition, surge is:

- Peacetime production acceleration
- Confined to existing facilities and equipment
- Limited to peacetime program priorities.

By design, the definition is used by the industrial preparedness planner to determine the maximum

output of existing production capacity without additional investment in plant, tooling, or equipment.

In order for a manufacturer to develop a surge plan and investment strategy prior to the Milestone III decision, the manager must begin with a revised surge concept. The first question to be answered is "what is surge?" Consider the individual aspects that apply to a program in full scale development:

- Surge is the process of achieving the established surge goal included in the program baseline
- Surge is an immediate increase in production output achieved by augmenting the capacity required to produce the program buy
- Surge operates within a different legal, procedural, and financial environment than the normal peacetime condition
- Surge applies only to the current producers in the Defense Production Base and is not intended to disrupt the civil economy
- Surge capacity is not constrained by existing facilities and equipment, but rather is constrained only by time and willingness to invest.

With these aspects in mind, surge might be defined as:

> An immediate increase in production output achieved by modifying the operating environment and augmenting the peacetime production capability by timely investment in facilities, tooling, equipment, inventories, and labor. Surge is not intended to disrupt the continuing peacetime production of other government and civilian procurements.

The second question is "what assumptions should the manufacturer use when developing the surge production plan?" A proposed set of surge assumptions is listed below:

- The manufacturing plan developed for the program buy is valid and is the foundation for the subsequent surge analysis
- All legal, procedural, and financial impediments to expanding production will be resolved by the government
- Assets required for the production of non-surge items will not be diverted during surge.

(2) Industrial Mobilization: Industrial mobilization is generally defined as:

> A rapid buildup of production involving large production multiples that require major new facilities and employment levels, the diversion of civil sector output, and at least moderate disturbance to the national civil economy.

For the DoD and other Federal agencies, industrial mobilization will require major economic adjustments and resource reallocation, but for the program manager and his FSD contractors, the difference between the Surge Manufacturing Plan and the Mobilization Manufacturing Plan is not significant. The program manager's mobilization goal is larger and so is the investment requirement. Rather than adding individual tools and equipment to the peacetime production, the investment strategy may well call for replication of facilities and complete tool sets. The set of mobilization assumptions must include:

- Commercial manufacturing will be converted to defense production
- Production resources will be diverted to support defense production.

The rationale for the investment strategy begins where the manufacturing plan ends. The manufacturing plan (discussed in Section 14) identifies both the non-investment constraints (legal, procedural, financial) and their recommended fixes as well as the physical constraints requiring investment. While there is no common format for an investment preparedness investment strategy, a satisfactory strategy must address the following points:

- It must show the total cost
  - — Nonrecurring investment
    - Recoverable
    - Nonrecoverable
  - — Maintenance
  - — Management
- It must be divisible into discrete modules that can be, in turn, further divided to provide more detail
- Each module must show a clear return on investment either in lead time reduction or capacity expansion
- It must allow the decisionmaker to fully consider the cost/benefit tradeoffs with the other elements of the program.

The nonrecurring investment need not be made all at once. In fact, in keeping with the concept of graduated mobilization response, program managers would be expected to develop an investment strategy that, in keeping with Chapter 10 of DoD 4005.3-M, recommends industrial preparedness measures that should:

- Be immediately funded
- Be deferred but funded prior to a surge or mobilization

- Be deferred until after surge or mobilization begins.

There are seven criteria that can be used to select investment for the "fund now" category:

- Does the investment support the PM's peacetime goals and objectives?
- Would the industrial preparedness measure cost more if funding is delayed?
- Does the investment improve the responsiveness of more than one weapon system?
- Can the benefit of the investment be explicitly defined?
- Is the constraint that this investment fixes a pacing constraint?
- Can this investment cost be recovered over the life of the item or is it a sunk cost?
- Is it unlikely that this production capability will be acquired by other means?

Similarly, there are five criteria for deferring an investment for future funding:

- Can the surge or mobilization production goals be met without advance funding for this industrial preparedness measure
- Will this investment become obsolete or otherwise depreciate in value over time?
- Will there be recurring costs if this investment is made?
- Can the benefit of this investment be more clearly defined at a later time?
- Are the decisionmakers less likely to fund this investment at this time?

Some investments will undoubtedly require a definite threat to national security to warrant funding. While these investments should be identified in the strategy, the practical manager must recognize that they will probably not be funded until a mobilization is declared.

There are at least three levels of detail required for a useful investment strategy. The first is the total cost to achieve the surge or mobilization goal. This cost is expressed in terms of:

- Facilities (new construction or leases)
- Equipment (machine tools, tooling, and test equipment)
- Inventory (long lead time parts and materials)
- Labor (training).

Facilities, equipment, and labor are considered nonrecoverable costs and the investment will be lost if surge or mobilization does not occur. Inventory that can be considered a "rolling inventory" to be eventually used in peacetime production is recoverable, but any additional inventory is nonrecoverable.

To acquire the second level of detail, the total investment should be divided into incremental equipment sets. Each set will carry with it an equivalent level of investment in facilities, inventory, and labor. In order to define these sets the manager should:

(1) Begin with the facilities, equipment, inventory, and labor specified in the manufacturing plan

(2) Define the investment needed to optimize that capability at the prime contractor's facility

(3) Define the investment needed to permit the subcontractor base to match the prime contractor capability

(4) Define the investment needed to obtain the next production increment at the prime contractor's facility

(5) Repeat Step 4 for the subcontractor base

(6) Optimize Step 4

(7) Optimize Step 5

(8) Repeat Steps 4–7 until the production goals are achieved.

Theoretically, optimal capability is achieved when every piece of equipment is operating at 100 percent utilization. Practically, the manager may decide that optimum capability is achieved with some stations functional at less than 100 percent. This analysis should be made as a part of the contractor's manufacturing plan.

There also may be some tradeoff between acquiring inventory and investing in lower tier capability. If a subcontractor supports more than one end-item, enhancing his production capacity will add a greater degree of flexibility for less cost than purchasing inventory for each system.

The third level of detail identifies the pacing bottlenecks within each equipment set. Some bottlenecks constrain capacity and others constrain process flow. The bottleneck resources are those that are being (or expected to be) used at 100 percent utilization. Once the bottlenecks are identified, they can be ranked in order of pacing limitation. Thus, funding even within an equipment set can be accomplished in increments that will permit an orderly increase in industrial responsiveness.

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 5.1

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1. TOPIC

Contractor versus Government-Furnished Equipment

2. TOPIC SUMMARY

- ***Requiring contractors to furnish production equipment and tooling solely required for surge or mobilization contingencies increases unit cost and positions the DoD for criticism from Congress and the public regarding cost management.***

3. REFERENCES

—DoDD 4275.5, "Acquisition and Management of Industrial Resources"

—FAR Part 45, "Government Property"

—DLAM 4215.1, "Management of Defense Owned Industrial Plant Equipment (IPE)"

4. POINTS OF CONTACT

- ODUSD(I&IP)
- DLA, Director of Defense Industrial Plant Equipment Center
- Industrial Specialists

5. ABBREVIATIONS

DLAM ..	Defense Logistics Agency Manual
FSD	Full Scale Development
IPE	Industry Plant Equipment
OPE	Other Plant Equipment
PE	Plant Equipment
PEP	Plant Equipment Package
ST	Special Tooling
STE	Special Test Equipment

6. DEFINITIONS

- ***Facilities*** are property (other than material, special tooling, military property, and special test equipment) for production, maintenance, research, development, or test, including real property and rights therein, buildings, structures, improvements, and plant equipment.
- ***Plant Equipment Package*** is a complement of active and idle plant equipment that has been formally approved for retention, in accordance with DoDD 4275.5 and DLAM 4215.1.
- ***Industrial Base***. That part of the total privately owned and government-owned industrial production and maintenance capacity of the United States, its territories, and possessions, and the capacity located in Canada expected to be available during emergencies to manufacture and repair items required by the approved forces.
- ***Plant Equipment (PE)***. Personal property of a capital nature (consisting of equipment, machine tools, test equipment, furniture, vehicles, accessory and auxiliary items, but excluding special tooling and special test equipment) used or capable of use in the manufacture of supplies, in the performance of services, or for any administrative or general plant purposes.
- ***Industrial Plant Equipment (IPE)***. That part of plant equipment, with an acquisition cost of $5,000 or more, used for the purpose of cutting, abrading, grinding, shaping, forming, joining, testing, measuring, heating, treating, or otherwise altering the physical, electrical, or chemical properties of materials, components, or end items entailed in manufacturing, maintenance, supply, processing, assembly, or research and development operations.
- ***Other Plant Equipment (OPE)***. That part of plant equipment, regardless of dollar value, that is used in or with the manufacture of components or end items for maintenance, supply, processing, assembly or research and development operation; but excluding items categorized as IPE.
- ***Special Test Equipment (STE)***. Either single or multipurpose integrated test units engineered, designed, fabricated, or modified to accomplish special-purpose testing in the performance of the contract. Such testing units comprise electrical, electronic, hydraulic, pneumatic, mechanical, or other items or assemblies of equipment that are mechanically, electrically, or electronically interconnected to become a new functional entity, causing the

individual item or items to become interdependent and essential in the performance of special-purpose testing in the development or production of particular supplies or services. Special test equipment does not include material, special tooling, buildings, and nonseverable structures (except foundations and similar improvements necessary for the installation of special test equipment), and plant equipment items used for general plant testing purposes.

- ***Special Tooling (ST)***. All jigs, dies, fixtures, molds, patterns, taps, gauges, other equipment, manufacturing aids, and replacements thereof, that are of such a specialized nature that, without substantial modification or alteration, their use is limited to the development or production of particular supplies or parts thereof or the performance of particular services. The term includes all components of such items, but does not include material, special test equipment, or buildings, and nonseverable structures (except foundations and similar improvements necessary for the installation of special tooling), general or special machine tools, or similar capital items.

7. POLICY

- Contractors are ordinarily required to furnish property necessary to perform government contracts (FAR 45.102)
- The government-owned segment of the industrial base shall not exceed the minimum needs beyond contractor-owned capacity necessary to meet production requirements (DoDD 4275.5)
- The Department of Defense shall minimize government ownership of facilities; this shall be accomplished through an orderly phase down of current government ownership (DoDD 4275.5).
- Agencies shall not furnish facilities to contractors for any purpose...except...for support of industrial preparedness programs (FAR 45.302-1).

8. DISCUSSION

As in other sections of this guide, the definitive separation of the peacetime program and the surge/mobilization program needs to be applied to the issue of government-furnished equipment. Both Federal policy and practical business considerations suggest that contractors should purchase the equipment required to produce the peacetime buy and amortize that cost over the life of the buy. Through the effective use of competition, the cost of initial facilitization should be kept to a minimum.

Because competition requires a contractor to propose a minimum equipment and tooling set, there is no incentive for purposely installing idle (surge) capacity. Furthermore, should some idle capacity be built into the initial facility, it will be reflected in the overall life cycle cost of the program.

DoD must eventually recognize that surge/mobilization capacity is a contingency cost that the government cannot expect private industry to bear without compensation. That compensation can be subdivided into three parts:

- Development of surge and mobilization transition plans
- Investment in surge and/or mobilization production capability
- Maintenance of any installed capability.

Capacity investments are a problem in the early and the late stages of the acquisition cycle under the new rules for self-facilitization. Widening facilitization to accommodate more production capacity without indemnification by the government of a portion or all of contractor financial risk in investing in fixed facilities would be a major argument early in FSD for many programs. It may not be possible to make those decisions early in FSD even with a good design and manufacturing process because of contractor financial issues.

Other sections of this guide describe plan development. The development of surge and mobilization transition plans should parallel the development of the standard peacetime manufacturing plan which occurs during the Dem/Val and FSD acquisition phases. These transition plans describe the additional plant, industrial plant equipment, other plant equipment, and special tooling and special test equipment needed to reach the surge and mobilization goals that are provided to the program manager by the responsible DoD component. In some cases, the need may be met by installing individual equipment items to augment the peacetime facility. In other cases, the need may dictate the replication of complete plant and equipment sets.

Once the plans are completed, the Milestone III review should include a decision regarding investment in the specified surge and mobilization capability.

In order to provide the greatest degree of flexibility and control, program managers should consider that any investment in contingency production capability be made at government expense and installed in the contractors' facilities under the provisions of FAR Part 45 and DoDD 4275.5. The plant equipment should be officially designated a

Plant Equipment Package (PEP) and updated or augmented as needed to meet the approved production goals.

A PEP should never be approved unless it is installed at the site of intended use and properly maintained. Maintenance costs should be included in the life cycle cost estimates (Annex D to the Milestone III, IV, and V Decision Coordinating Paper) and budgeted as a separate line item within the program funding package.

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 6.1

VERSION: ORIGINAL

DATE: 22 APRIL 1988

1. TOPIC

Effective Use of Competition

2. TOPIC SUMMARY

- ***Unrestricted competition is not always in the best interest of the mobilization base.***
- ***One goal of competition should be geographical dispersion of effort.***

3. REFERENCES

—DoDD 5000.1 "Major and Non-major Defense Acquisition Programs"

—FAR 6.202, "Establishing or maintaining Alternative Sources"

—FAR 6.302-3, "Industrial Mobilization; or Engineering Development, or Research Capability"

—DoD FAR Supplement 8.070, "Industrial Preparedness Production Planning"

—DSMC Handbook "Establishing Competitive Production Sources"

4. POINTS OF CONTACT

- Industrial Specialists
- Competition Advocates

5. ABBREVIATIONS

CICA	Competition in Contracting Act
DSMC	Defense Systems Management College

6. DEFINITIONS

- ***Mobilization Base*** is that capacity available to permit rapid expansion of production, sufficient to meet military, war-supporting, essential civilian, and export requirements in event of a full-scale war. It includes such elements as essential services, food, raw materials, facilities, production equipment, organization, and manpower.
- ***Design Competition.*** Two or more companies develop conceptual or design approaches, one or more of which will be used for the production contract. The competition can be extended through the demonstration and validation phase and into the full scale development phase to obtain prototype performance verification and to provide a natural competition for the production contract. Typically, in large programs design competition ceases at full scale development.
- ***Production Competition.*** Two or more companies bid to secure all or part of a production contract. Thus, there may be a winner-take-all competition or the production may be split between two contractors. The competitors may have participated in the program prior to the first production contract, or one or more may have been brought in through a second-sourcing strategy.

7. POLICY

- Provisions for obtaining competition in each phase of the acquisition process shall be described in the acquisition strategy. This includes planning for competition for ideas and technologies in the early phases, and the use of commercial-style competition procedures that emphasize quality and established performance as well as price during the production phase. (DoDD 5000.1)
- Use of full and open competitive procedures is the preferred means to establish, maintain, and enhance U.S. industrial resources. However, use of other than full and open competitive procedures is authorized when:

  "... it is necessary to award the contract to a particular source or sources in order to maintain a facility, producer, manufacturer, or other supplier available for furnishing supplies or services in case of national emergency or to achieve industrial mobilization." (10 U.S.C. 2304(c)(3), FAR 6.302-3). This authority can be used to:

  — Keep vital facilities or suppliers in business or make them available in the event of a national emergency

  — Train a selected supplier in the furnishing of critical supplies or services and prevent

the loss of a supplier's ability and employees' skills

- — Maintain properly balanced sources of supply for meeting the requirements of acquisition programs in the interest of industrial mobilization
- — Limit competition for current acquisition of selected supplies or services approved for production planning under the Department of Defense Industrial Preparedness Program to planned producers with whom industrial preparedness agreements for those items exist, or limit award to offerors who agree to enter into industrial preparedness agreements
- — Create or maintain the required domestic capability for production of critical supplies by limiting competition to items manufactured in the United States or the United States and Canada
- — Continue in production, contractors that are manufacturing critical items, when there would otherwise be a break in production
- — Divide current production requirements among two or more contractors to provide for an adequate industrial mobilization base
- — Provide for educational orders to train prospective contractors at their emergency mission.

- Other than full and open competitive procedures may be used to accomplish the following types of actions to support national security or industrial mobilization requirements:
  - — Establish geographically dispersed and effectively balanced planned producer sources to prevent total loss of production capabilities caused by natural disaster, domestic turmoil, or enemy action
  - — Expand the facilities of current planned producers and acquire additional producers to satisfy adequately expected mobilization requirements
  - — Channel procurements to specific segments of the industrial base to sustain, develop, and enhance essential skills, services, or expertise (FAR 620.2).

8. DISCUSSION

The Competition in Contracting Act (CICA) established a system of competition advocates which is mandated to:

- Challenge barriers to and promote full and open competition in the acquisition of supplies and services
- Identify and report any condition or action that has the effect of unnecessarily restricting competition
- Recommend goals and plans for increasing competition
- Recommend a system of personal and organizational accountability for competition, which may include the use of recognition and awards to motivate program managers, contracting officers, and others in authority to promote competition in acquisition.

In the implementation of this system, both Congress and DoD have placed a heavy emphasis on price competition. However, emphasizing competition on the basis of initial production price and discounting contractors' capabilities and records for quality and timely performance, as well as downstream (life cycle) costs, have not always provided the best value to the Government. A DoD study of U.S. competitiveness concluded that emphasis, under CICA, on low-cost bidders favors companies who bid fully depreciated equipment and hurts those with modern facilities.* Similarly, a 1985 Joint Logistics Commanders' Study of the Effect of Foreign Dependency found that a primary reason for the introduction of foreign dependencies in U.S. weapon systems was the pervasive use of full and open competition without regard to the industrial base implications.† What these and other studies are reporting is that price-only competition provides short term benefit for DoD, promulgates an adversarial environment between Government and industry and between prime contractors and their subcontractors, and is a major cause of the deteriorating health and responsiveness of the Defense Industrial Mobilization Base. This paper is not suggesting that competition is in itself bad for the industrial base. It, in fact, supports competition as the preferred method of obtaining goods and services because it affords the maximum number of qualified sources an opportunity to be selected as a supplier. However, when price becomes the sole decision criterion for conducting a competition, the industrial base does suffer.

*Bolstering U.S. Defense Industrial Competitiveness, USD(A), 1988.

†"A Study of the Effect of Foreign Dependency," The Joint Logistics Commanders, 1985.

The DSMC Competition Handbook states that "Competition is not advocated merely for the sake of competition but, rather, it is advocated as a means to enhance the overall value of weapon systems procurement to the Government, considering the economic, technical, schedule, and logistics effects."* In order to accomplish this purpose, those persons responsible for developing and executing the competition strategy must understand how the system fits into the national defense strategy and how the Service intends to employ the system.

From the industrial base perspective, good competition depends on three factors:

- The establishment of valid goals and objectives
- The development of comprehensive source selection criteria
- Understanding and support of the program manager, the contracting officer, and the competition advocates.

There are four discrete types of competition that occur during the life-cycle of a weapon system:

- Concept Development
- Design
- Production
- Logistics Component Breakout.

During Concept Exploration, a selected number of short-term contracts are awarded to define alternative system concepts to satisfy the established mission need. The concepts are customarily evaluated using the criteria of cost, risk, schedule, and readiness. Based upon the evaluation, one or more of the concepts are selected for design validation.

Of course, the evaluation criteria are determined by the Manager's program baseline which currently does not address the producibility aspects of system employment and force sustainment (see Sections 1.1, 1.2, 3.1). If these issues were addressed, the contractors' concepts could also be evaluated on industrial preparedness criteria. The ability of a weapon design to meet both the producibility and performance objectives may eliminate the need to consider an alternate "mobilization specification" later in the acquisition process.

Design competition occurs prior to full scale development. A primary objective of this phase of competition is the generation of cost-effective and technically superior designs that will result in lower life cycle costs. As in any competition, managers are advised to carefully consider the selection of low-cost solutions which may lead to future deterioration of the production base.

Often a design competition will result in a single FSD contract. This action may further lead to a production competition that effectively eliminates those contractors that were involved in the previous development effort. Every acquisition program should be assessed for its ability to accommodate performance specifications. The use of performance specifications can permit the maximum number of contractors to participate in a weapons program from concept exploration through production. If a design can meet all criteria other than cost, then competition can continue in the FSD phase based on cost with an eventual split production award to keep the maximum number of producers in a warm base status (see Section 8.1).

The goals of production competition are to obtain the lowest fair and reasonable price, to encourage improvements to quality, and to enhance the industrial base. In order to achieve these three goals simultaneously, the manager must make balanced decisions with program stability constantly kept in mind. The competition for the initial production buy should be as full and open as possible. However, the number of contract awards should be predicated on the size of the peacetime buy and the requirements for surge and mobilization capability.

Once the preferred warm base is established, further competition should be restricted to current manufacturers unless extraordinary circumstances are present. This restriction is permitted under Exception 3 to the Competition in Contracting Act and in the interest of industrial base stability and mobilization base preservation should be a primary decision point.

Logistics Component Breakout is also subject to restricted competition. The 1985 Joint Logistics Commanders' foreign dependency study found that component breakout is a primary source of foreign dependency. This occurs because most component breakout decisions are based on cost criteria.

Prime contractors make a considerable effort to ensure that their subcontractors meet Government standards for quality and reliability. If the manager elects to breakout a component to cut down on overhead expense, he should ensure that the decision to buy repair parts from any other firm will not undermine the overall production capability for that part in terms of industrial preparedness goals.

*"Establishing Competitive Production Sources," A Handbook for Program Mangers, Defense Systems Management College, August 1984.

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 8.1

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DATE: 31 DECEMBER 1988

1. TOPIC

Development of a Procurement Strategy

2. TOPIC SUMMARY

- ***A procurement strategy must ensure the long-term integrity of the industrial base.***
- ***A procurement strategy should protect the privileges granted planned producers.***

3. REFERENCES

—DOD 4005.3-M "Defense Industrial Preparedness Production Planning Manual"

—DODD 4105.62 "Selection of Contractual Sources for Major Defense Systems"

—FAR 6.202, "Establishing or Maintaining Alternative Sources"

—FAR 6.302-3, "Industrial Mobilization; or Engineering, Development, or Research Capability"

—DoD, FAR Supplement 8.070, "Industrial Preparedness Production Planning"

—DoD FAR Supplement 15.612, "Formal Source Selection"

4. POINTS OF CONTACT

- Procurement contracting officers
- Industrial base specialists.

5. ABBREVIATIONS

ASPPO .	Armed Services Production Planning Officer
IPPL	Industrial Preparedness Planning List
MSR	Minimum Sustaining Rate

6. DEFINITIONS

- ***Armed services production planning officer (ASPPO)*** is the government designee responsible for performing industrial preparedness planning in plants under his or her cognizance.
- ***Economic production rate*** represents the optimal use of production resources (labor, capital, materials) which produces an item at the lowest possible unit cost. It should be the objective of every procurement.
- ***Industrial Preparedness Planning List (IPPL)*** is a listing of the items designated by each DoD component as necessary to sustain combat and mobilization needs, for which surge and mobilization planning should be accomplished.
- ***Maximum peacetime rate*** represents the upper bound for a manufacturer's peacetime operation. It is the maximum production that can be achieved within existing plant and tooling constraints.
- ***Minimum sustaining rate (MSR)*** represents the lower bound for a manufacturer's operation. It is the smallest number of items that can be produced without exceeding the established unit cost.
- ***Mobilization planning rate*** is the maximum production that can be achieved if all constraining legal and procedural requirements are eliminated and all nonessential production is curtailed.
- ***Procurement strategy*** is the framework for establishing a contract for the purchase of goods and services.
- ***Planned producer*** is an industrial firm/activity that has indicated its willingness to produce or repair military items during surge or mobilization under industrial preparedness procedures by consummating a production planning schedule.
- ***Surge planning rate*** is the maximum production that can be achieved within existing facility physical constraints, assuming that additional tools, tooling, and material inventories are purchased and other production is not disturbed.

7. POLICY

- Other than full and open competitive procedures is authorized when it is necessary to award the contract to a particular source or sources in order to maintain a facility, producer, manufacturer, or other supplier to furnish supplies or services in case of national emergency or to achieve industrial mobilization (FAR 6.202).

- Other than full and open competitive procedures may be used to:
  - — Establish geographically dispersed and effectively balanced planned producer sources to prevent total loss of production capabilities caused by natural disaster, domestic turmoil, or enemy action
  - — Expand the facilities of current planned producers and acquire additional producers to adequately satisfy expected mobilization requirements
  - — Channel procurements to specific segments of the industrial base to sustain, develop, and enhance essential skills, services, or expertise. (FAR 6.302-3)

8. DISCUSSION

Too often procurement strategies are developed pro forma without due consideration to the long-term viability of the industrial base. From the industrial base perspective, every procurement decision must account for the effect of that decision on the ability to achieve future crisis procurement goals for end items and their supporting components.

Figure 8.1-1 displays a process for developing a procurement strategy. The process is initiated by a procurement request which identifies the quantities and preferred delivery schedule for a given item. Ideally, the requester will determine if the item is on the Industrial Preparedness Planning List (IPPL) or is a component of such an item. However, it is ultimately the responsibility of the cognizant contracting officer to verify the designation of each procurement item. Verification can be facilitated by establishing a close liaison between the procurement office and the industrial preparedness planning office.

If the item is designated an IPPL item or an IPPL item component, the procurement officer (with the assistance of the Industrial Planning Office) should conduct an industrial analysis to ensure that a viable production base is maintained. The analysis should consider in order:

- Those facilities currently producing the item, since the most expedient emergency production increase will come from the current producers
- Other planned producers which have previously manufactured or have certified the capability to manufacture the item
- All other potential manufacturers which have a capability but no previous experience in producing a given item.

This procedure presumes that:

- A satisfactory competition was conducted to initially select the current producers
- All current producers are also planned producers
- Each planned producer has established a range of production rates which can provide a set of decision criteria for future contract awards.
- Surge and mobilization production targets have been established.

Step 1: Validate the production profile of all planned producers:

- For current producers, determine the time remaining on their current contracts and their assigned production rates
- For other planned producers, verify their ability and/or willingness to participate in peacetime production. This data may be kept on file by the procurement officer or can be obtained by the appropriate ASPPO upon request
- For all producers, determine if sufficient capacity exists to meet the surge and mobilization production rate targets.

Step 2: If the planned producers do not have sufficient capacity to meet the surge and mobilization targets, use the ASPPO system to identify other potential planned producers and determine their willingness to become planned producers:

- For those that express willingness, conduct an industrial survey to determine their production capability (rates and times)
- Complete enough production planning agreements with these manufacturers to ensure that an adequate mobilization base is established.

Step 3: Make a preliminary allocation of the new buy to determine if:

- All current producers can receive a sufficient order to maintain their production above MSR
- Any current producer would exceed the economic production rate
- There is a large enough quantity to justify a production contract to additional planned producers

If the new buy will keep the current producers operating at a rate between their MSR and economic production rate, the procurement should be

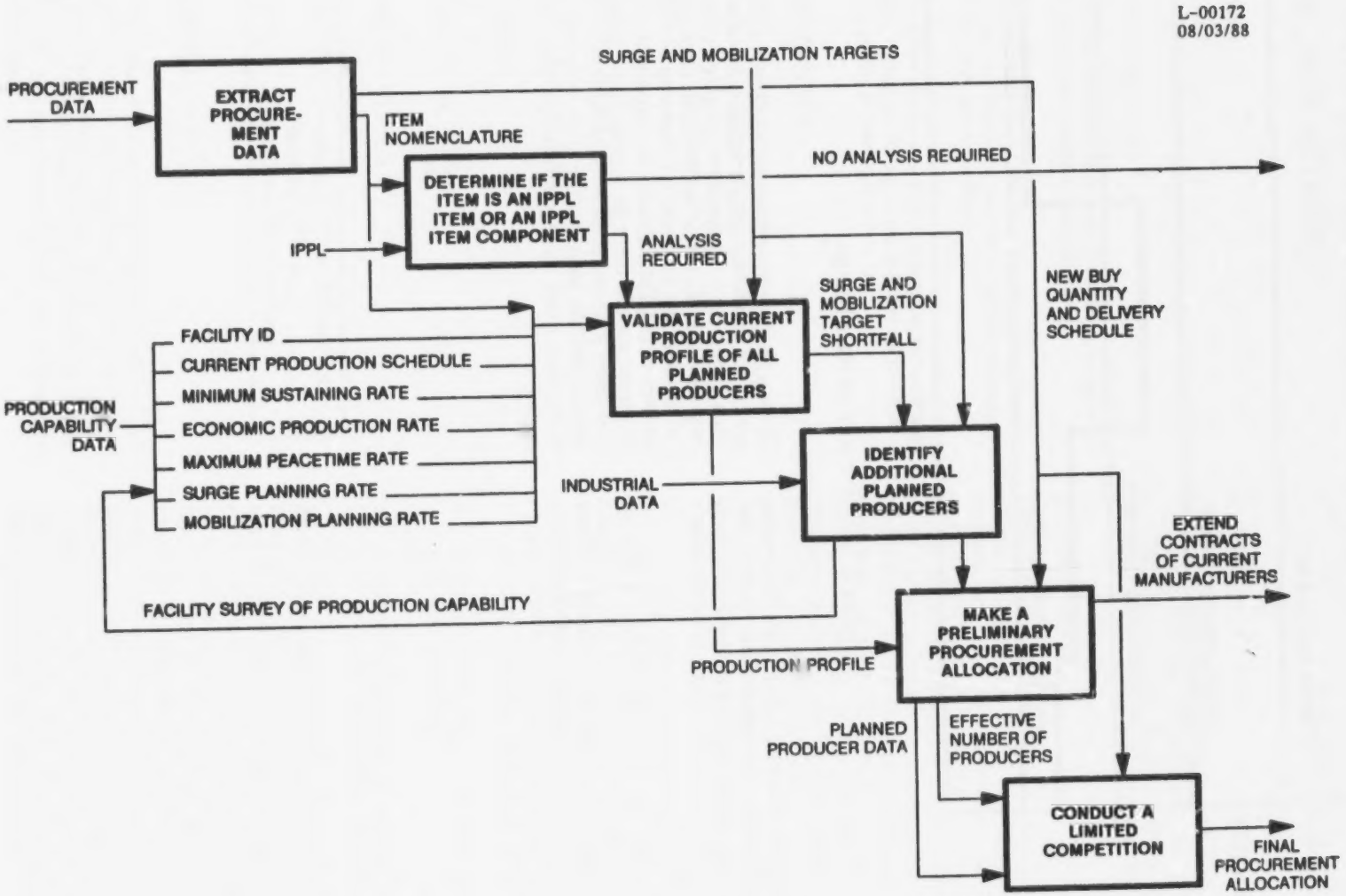

Figure 8.1–1 Procurement Strategy Process

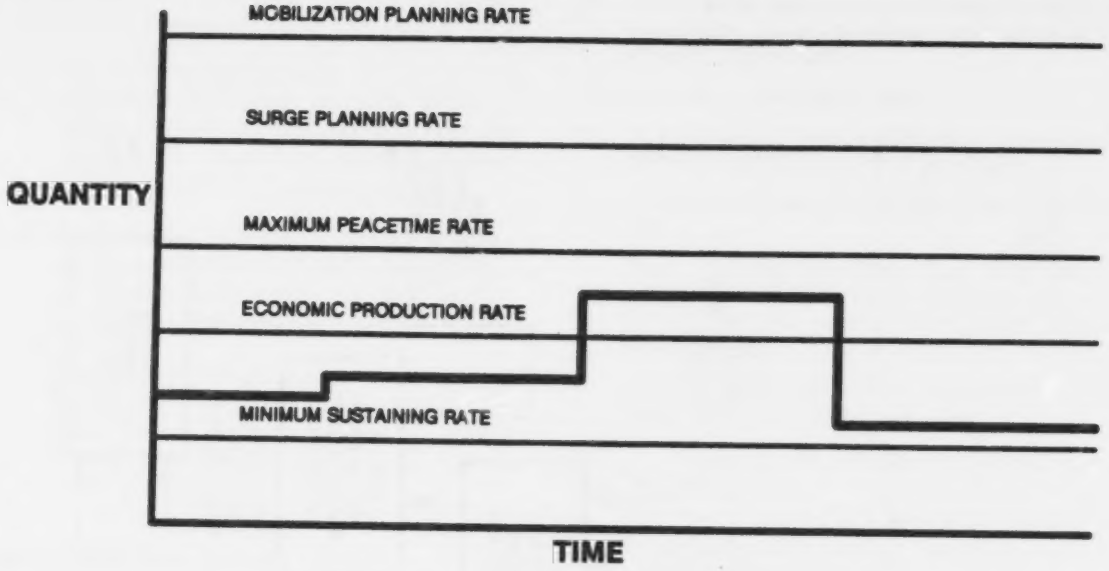

Figure 8.1–2 Production Rate Range

restricted to them. If, on the other hand, the new buy will cause a producer to exceed the economic production rate, the nonproducing planned producers should be afforded an opportunity to compete for a portion of the buy.

Step 4: Consider the need to conduct a limited competition under the provisions of FAR 6.202 and 6.302–2 in order ensure that the maximum number of planned producers can be used, while balancing the allocation to achieve the lowest overall cost.

If the previous procurement was openly competed and if the producers are performing satisfactorily, then other than competitive contract extensions may be viable courses of action. This promotes stabilization of the base and is in keeping with the objectives of the Total Quality Management concept. However should there be a reasonable possibility that other planned producers could provide better service without jeopardizing crisis response capability then more open competition may be warranted.

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 8.2

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1. TOPIC

Stabilizing the Subcontractor Structure

2. TOPIC SUMMARY

- ***A strong subcontractor base is essential to achieving surge and mobilization objectives***
- ***Procurement decisions that impose minor impact on a prime contractor may have significant impact on the subcontractor base.***
- ***The effort of procurement decisions on the subcontractor may not be apparent to the program manager or the prime contractor.***

3. REFERENCES

—DOD FAR Supplement 8.070, "Industrial Preparedness Production Planning"

—DoD FAR Supplement 17.1, "Multiyear Contracting"

4. POINTS OF CONTACT

- Industrial Specialists
- ASPPOs
- Contracting Officers

5. ABBREVIATIONS

ASPPO ..	Armed Services Production Planning Officer
MYP	Multiyear Procurement

6. DEFINITIONS

- ***Multiyear procurement (MYP)*** is a method of acquiring more than one year's but not more than five year's requirements under one contract. Each program year is budgeted and funded annually, but the commitment is for at least several years.

7. POLICY

- Planned producers shall be solicited in all procurements over $10,000 for items for which they have a signed industrial preparedness agreement (DoD FAR Supplement 8.070).

8. DISCUSSION

The establishment and preservation of a stable subcontractor base is essential for industrial responsiveness. The manufacturers, vendors, and suppliers that currently provide goods and services are the nucleus of an orderly and effective transition of the industrial base from a commercial peacetime environment to an emergency support role with minimum delay or disruption. Depending on the extent of knowledge of the subcontractor support structure, planning can be accomplished to either expand the capacity of current producers or to identify alternate producers that can be rapidly assimilated. The following five steps can be used by the program manager to achieve the necessary subcontractor stability:

- Identify the production base that supports the system architecture
- Evaluate the capacities and limitations of critical subcontractors and industrial sectors
- Develop measures to reduce the limitations
- Incorporate the measures into plans, strategies, and programs
- Monitor the status of the support base as the system moves through its life cycle.

Identify the Production Base: This first step may appear trivial, but program offices that are making management decisions frequently make them without understanding the full impact of those decisions on the subcontractor base. Visibility into the production base is essential to informed decision-making. A program office cannot rely on a prime contractor to ensure that the production base remains responsive. In most cases, prime contractors have little visibility beyond the next lower manufacturing tier and numerous industrial base studies have demonstrated that the most critical bottlenecks occur at the lower production tiers. (Chapter

Nine provides a detailed discussion of data collection methods.)

Evaluate Capacities and Limitations: The evaluation of subcontractor capacities and limitations does not depend on any predetermined set of peacetime, surge, or mobilization production targets. Rather, subcontractor capacity should always be measured against prime contractor capacity. The ultimate question is, "Can the subcontractor deliver in the quantity and at the time required by the prime contractor to meet his production schedule?" If the answer is no, the subcontractor has limitations that must be resolved.

Develop Measures: Some measures to reduce subcontractor limitations can be applied solely by the prime contractor, but others can only be achieved by joint Government–contractor cooperation. Among these are:

- Flowdown of multiyear contracting
- Expansion of the number of subcontractors.

Multiyear contracting is intended to stabilize the contractor workforce, provide incentives for capital investment, and broaden the competitive base. The use of multiyear contracting allows the manager to take advantage of:

- Continuity of production
- Stabilization of contractor work forces
- Broadening of the competitive base
- Improved productivity due to capital investment
- Economic order quantity procurements.

Program managers must justify the use of multiyear contracting and contractors are responsible for ensuring that the benefits are extended to their subcontractors.

If the limitations are strictly capacity related, using more subcontractors to provide an item will automatically increase total production capacity. However, the size of the peacetime buy may not justify such expansion.

Sometimes the Government attempts to develop a broader subcontractor base through the use of competition. However, if competition is solely based on price, it can foster instability and make it virtually impossible for defense contractors to establish a stable base of reliable, high quality vendors.

Emphasis on price competition by the Congress and DoD effectively precludes the development of long–term relationships between prime contractors and suppliers and often stimulates an adversarial relationship between them. The absence of long–term relationships does not permit extended, cooperative design, development, and manufacturing exchanges between the prime and his subcontractors. Additionally, annual price competitions tend to drive away many of the best–qualified suppliers due to the complex and expensive Government rules and regulations that primes are required to flow down.

During system development, contractors can work with their program managers to design components so that they can employ more general purpose tooling. The less specialized the tooling requirement, the greater number of suppliers that can be called upon to support a weapon's production. This issue is relevant to the prime contractor's make/buy planning.

Inspection of the make/buy plan can also reveal a potential for foreign dependency. Although foreign sourcing is not normally visible at the make/buy plan level, there have been decisions by manufacturers to buy from foreign manufacturers. The Government should consider each foreign source buy decision for its foreign dependence vulnerability and the long–term health of the domestic subcontractor base.

Incorporate Measures: This step is needed to ensure that management consciously includes subcontractor stability in its decisionmaking. As a part of this step, the program manager should assign specific oversight responsibility. The responsible individual may be a member of his staff, preferably someone with manufacturing experience, or an industrial specialist in the industrial preparedness office. This person should be especially involved in all aspects of developing acquisition, manufacturing, and procurement strategies and encouraged to call attention to any actions that could improve subcontractor stability.

Monitor Status: As has been discussed in other sections, while the subject of subcontractor stability is important in all phases of the acquisition cycle, the specific issues will change as the program matures. In the early phases there is no subcontractor base, and yet, many decisions are made that will significantly influence the composition and vitality of the base when it is generated. Responsible program management will look ahead and attempt to anticipate the long–term impact of near–term decisions.

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 9.1

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1. TOPIC

Data Collection Methods

2. TOPIC SUMMARY

- ***Since data are expensive to collect and maintain, only the minimum essential set of data needed to manage industrial base activities should be specified.***
- ***Standard DoD data definitions and collection methods are necessary.***
- ***Industrial base analysis should use data that are regularly developed in the conduct of day–to–day business.***
- ***Inconsistent data undermines the decisionmaking process.***
- ***There is no substitute for direct government/industry interface in data collection***

3. REFERENCES

—DoD 4005.3–M, "Industrial Preparedness Planning Manual"

—DoD FAR Supplement 8.070g(4), "Industrial Preparedness Production Planning"

—The OSD Industrial Responsiveness Analysis

4. POINTS OF CONTACT

- Office of Industrial Base Assessment, Skyline Plaza, Suite 1406, 5203 Leesburg Pike, Falls Church, Va 22041–3466, (202) 756–2310
- Hq, U.S. Army Materiel Command; Attn: AMCPD–IM; 5001 Eisenhower Avenue; Alexandria, Va 22333; (202) 284–8224, (AV) 274–8224
- Secretary of the Air Force; SAF/AQCM; the Pentagon, Room 4C283; Washington, DC 20330–1000; (202) 697–5023 (AV) 227–5023
- Chief of Naval Operations (OP–402) the Pentagon, Room 4C535; Washington, D.C. 20305–2000, (202) 695–5997 (AV) 225–5997.
- Director, Defense Logistics Agency; Attn: DLA–PRS; Cameron Station; Alexandria, Va 22314; (AV) 284–6451.

5. ABBREVIATIONS

ASPPO ..	Armed Services Production Planning Officer
DID	Data Item Description
DLA	Defense Logistics Agency
FSD	Full–Scale Development
IPPP	Industrial Preparedness Planning Program
IPM	Industrial Preparedness Measures
JIT	Just in Time
MRP	Manufacturing Resources Planning
OPT	Optimized Production Technology
PBA	Production Base Analysis
POM	Program Objective Memorandum

6. DEFINITIONS

- ***Economic production rate*** represents the optimal use of production resources (labor, capital, materials) which produces an item at the lowest possible unit cost. It should be the objective of every procurement.
- ***Maximum peacetime rate*** represents the upper bound for a manufacturer's peacetime operation. It is the maximum production that can be achieved within existing plant and tooling constraints.
- ***Minimum sustaining rate (MSR)*** represents the lower bound for a manufacturer's operation. It is the smallest number of items that can be produced without exceeding the established unit cost.
- ***Graduated Mobilization Response*** is the planning of mobilization actions in incremental steps to permit reaction to early warning; and, proceeding when warning is available, with modulated responses to deter, or recover from a crisis.

- The ***Production Base Analysis (PBA)*** is an annual report prepared by the Military Services and the DLA. It describes the condition of the existing Defense Industrial Base and the results of IPPP efforts to satisfy surge and mobilization requirements. The PBA provides information for planning, programming, and budgeting IPMs and for long-range plans to sustain and improve the defense industrial base.

7. POLICY

- Industrial facility surveys (DD Form 1519-2) shall be accomplished at least every two years or whenever plant capabilities change significantly (DoD 4005.3-M).

8. DISCUSSION

Industrial base data collection is a controversial issue for DoD. There are no standard definitions, objectives, assumptions, or procedures established which provide a universal foundation for DoD agencies and components. As a result, every data inquiry to industry can potentially require manufacturers to disregard all previous data requests and begin a new effort. Not only does this lack of consistent data collection procedures frustrate both government planners and contractors alike, it leads to flawed analyses of industrial capability.

If DoD is serious about integrating industrial preparedness into the acquisition process, it must first and foremost develop a standardized data collection format to be used by every program manager and every manufacturer. The industrial base data for each program can be aggregated by each Service to be a part of their Production Base Analyses (PBAs) and the several Service PBAs can, in turn, be combined to produce a joint DoD PBA.

There are four factors that make up an effective data collection process:

- Identifying the essential information
- Stipulating the requisite objectives, assumptions, and definitions
- Developing an understandable data collection format
- Specifying an effective government/industry interface procedure.

Identifying the essential information: Previous attempts to collect industrial base data have been intrinsically flawed because government planners:

- Ask for data that might be useful rather than first identifying an analytical or management need
- Develop data requirements and formats without consulting industry to determine how the data could be obtained most economically
- Have not coordinated their data collection efforts, thereby imposing multiple data requests on industry without compensation.

Basic industrial analysis needs to answer the following questions:

- What are the yardstick production rates (minimum sustaining rate, economical production rate, maximum peacetime production rate) that will be obtained if the manufacturing plan is implemented?
- What is the maximum production that can be obtained from the peacetime facility if surge or mobilization conditions are imposed?
- Is that maximum production sufficient to meet the production goals?
- If not, what industrial preparedness measures are needed to meet the surge production goal?
- If not, what industrial preparedness measures are needed to meet the mobilization production goal?

The data required to answer the questions can be divided into the physical and nonphysical properties of production. The physical properties refer to the engineering perspective of the production process. As shown in Figure 9.1-1, both the input and functions are standard for every manufacturer at every level of production.

The material input consists of everything that a manufacturer purchases. Material shortages tend to be the most immediate bottleneck to increased production. This bottleneck can be prevented by ensuring that the production capability of the lower production tiers matches that of the prime contractor and by determining the critical inventory levels that must be maintained to allow for administrative and production acceleration lead times.

If the production increase is sufficiently pervasive, placing significant demand on the mobilization base, the shortages may only be overcome by exercising economic controls. While the decision to use a material priorities and allocations system is not a program manager option, the effective use of such controls begins with a clear understanding of the

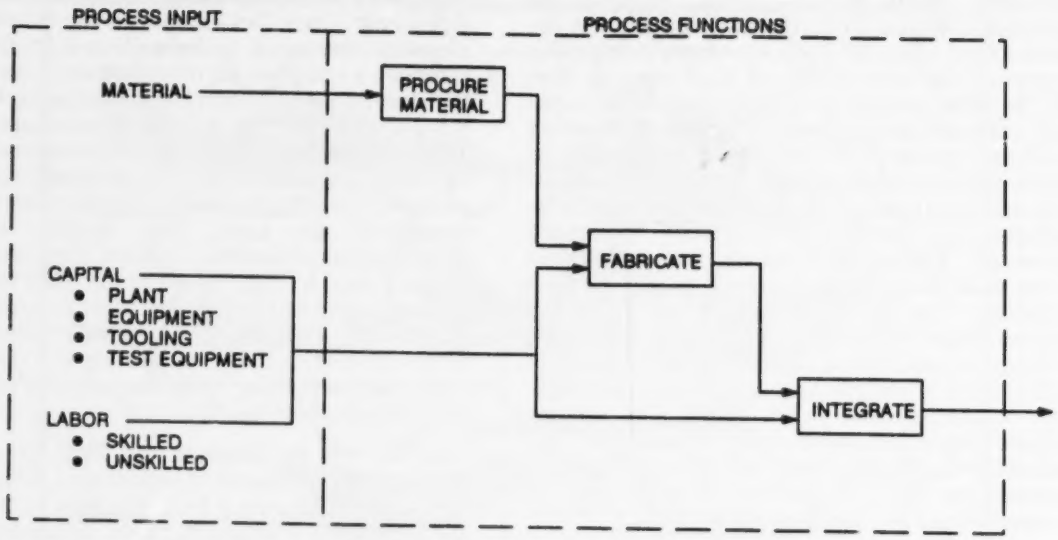

Figure 9.1-1 Physical Aspects of the Production Process

bills of materials for each end item. If every program manager were to assemble an accurate bill of material during the FSD and production phases and pass it to the appropriate Service for consolidation in their production base analysis, the ultimate impact of the production programs could be determined. This impact includes the need to construct new plants, to produce new machine tools, to transport materials to and from plants, and to curtail civilian production when necessary.

At each production level the inputs of capital and labor provide the value-added functions that transfer the purchased materials into the output product. With the advent of computer technology, many companies have acquired manufacturing planning software such as OPT (optimized production technology), MRP-II (manufacturing resources planning), and a variety of JIT (just in time) inventory control techniques. These planning methodologies are used to develop production networks to analyze each operation within those networks, to control inventory levels and production schedules, and to identify critical bottlenecks in the production process.

The ability to identify bottlenecks in the production process is the key to developing production acceleration solutions. In order to maximize output, the bottleneck activities must be operating at 100 percent utilization. In order to increase output, there must be additional investment in either capital or labor at each bottleneck activity.

If the manager accepts the premise that the contractor will propose the minimum essential set of equipment to satisfy the peacetime production requirement, then the first production enhancement is the prioritized list of industrial preparedness measures (IPMs) that will optimize the output of the peacetime tooling set. Each IPM must contain four data elements:

- A description of the nature of the solution and how it fits into the manufacturing process
- The cost of implementation
- The benefit expressed in terms of lead time reduction, capacity expansion, economy, or efficiency
- The emplacement lead time which states the time from a decision to implement that a solution is operational.

The second production enhancement is the capital/labor resource requirement to obtain the next increment of production. The third enhancement is the optimization of enhancement number two. This iteration of determining the "must" resources and then the "optimum" resources can be continued until the program manager's production goals are reached.

The nonphysical properties of production can influence production capabilities and lead times as much as the physical properties and they are often overlooked when performing an industrial resource assessment. These properties consist of the legal, procedural, and economic rules and policies that establish the production environment. Nonphysical industrial preparedness measures should always be

considered before physical IPMs. In 1985, the American Defense Preparedness Association organized the Industrial Responsiveness Analysis in support of the Joint Chiefs of Staff exercise Port Call '86. This analysis of critical production capability assessed a baseline environment in which maximum production acceleration would be achieved assuming peacetime procedures, regulations, and laws (nonphysical properties) and no investment in additional capacity (physical properties). The baseline assessment was followed by two excursions which assumed that peacetime procedures, regulations, and laws which inhibit progress would, where appropriate and justifiable, be waived or modified to achieve higher production levels and that investments to acquire additional capacity would be actively considered. The first excursion considered investment concurrent with production acceleration and the second excursion assumed that all investment was in place prior to the onset of the production buildup.

Accurate documentation of the nonphysical rules and policies that establish the production environment are absolutely essential to the data collection effort. False environmental assumptions have proved to be one of the largest contributors to faulty assessments and are a leading cause for the communication errors that sometime occur between government and industry.

Stipulating the requisite objectives, assumptions, and definitions: Once DoD identifies the essential data elements that need to be collected, it must next establish a common set of objectives, assumptions, and definitions to govern the collection task. Figure 9.1-2 shows how the industrial base capability to support individual program requirements should be integrated at the respective Service/DLA level to permit those components to estimate the industrial capability to meet the larger industrial preparedness objectives. In turn, the Service/DLA PBAs should be aggregated at the OSD level to allow corporate strategic investment strategies to be developed. The DoD PBA should reflect DoD's perspective of industry's capability and potential to meet the warfighting requirements of the Unified and Specified commands.

Another way to illustrate the need for common terms and references is to look at the DoD PBA as a jigsaw puzzle (Figure 9.1-3). Each piece of the puzzle represents a separate bit of information that, when inserted in its proper place, adds to the complete picture.

However, should the individual collection efforts use different assumptions and definitions, the assemblage of the separate efforts can never provide a true picture of the whole.

This discussion attempts to present the common terms and references that should preface every data

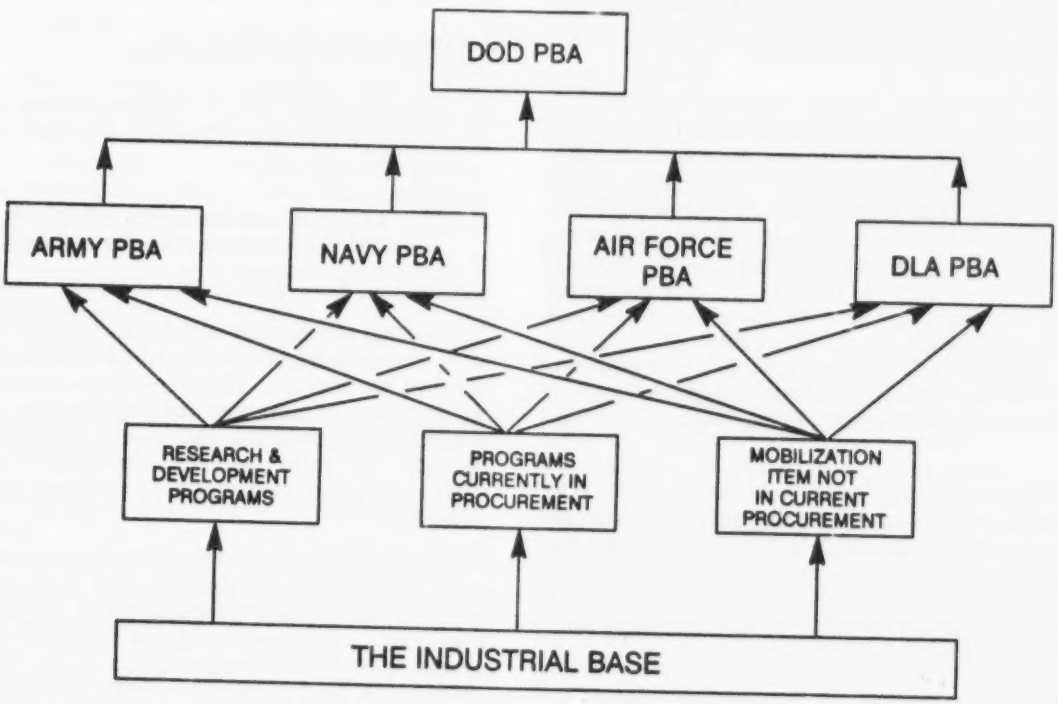

Figure 9.1-2 PBA Integration

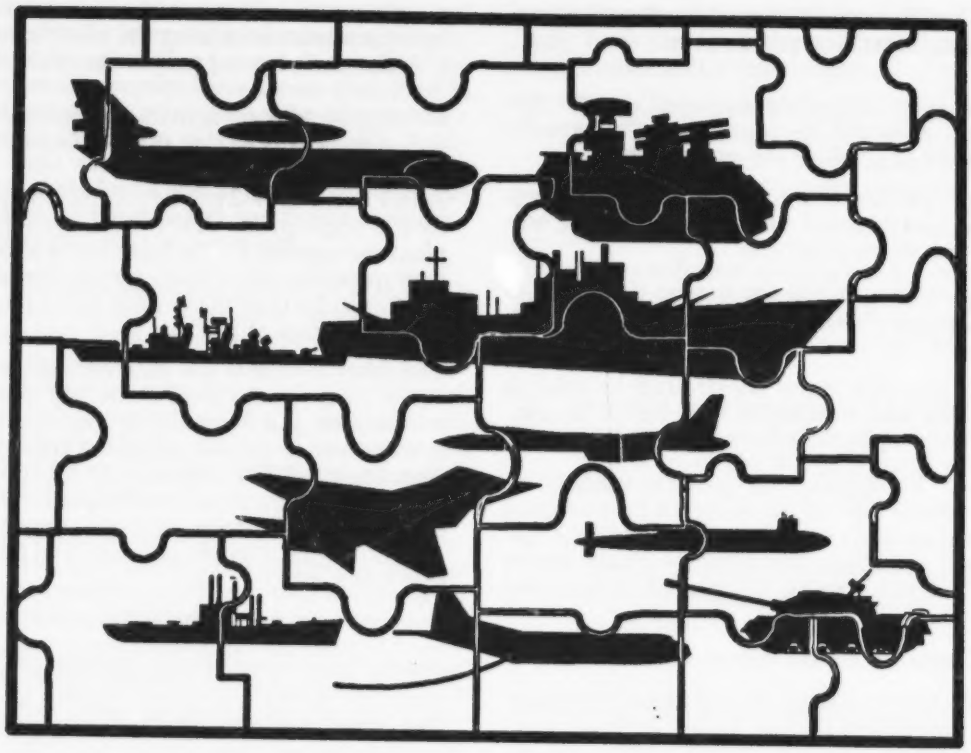

Figure 9.1-3 The DoD PBA

inquiry with industry. At best, it can only be suggestive, since it is OSD's responsibility to develop and disseminate an official list. Nevertheless, every program manager should ask for that list before he begins to conduct any industrial assessments.

(1) General terms and references: The following list contains those issues which have global application:

- There are three production environments
  - — Peacetime
  - — Surge
  - — Mobilization
- Under the concept of graduated mobilization response, it is possible for a manufacturer to be producing in all three environments at the same time
- Any one product can only be operating in one production environment at a time.

(2) Peacetime terms and references:

Objective: The peacetime objective is to produce the program buy as efficiently as possible.

Assumptions:

- Established production priorities are in effect
- Based upon a given set of rules and policies, production capacities and lead times can be accurately computed.

Definitions: Peacetime production is the production that supports the procurement levels developed through the PPBS.

(3) Surge terms and references:

Objective: The surge objective is to rapidly increase production output without disrupting the continuing peacetime production of other government and commercial procurement.

Assumptions:

- Surge is the process of achieving either the established surge goal included in the program

baseline or a modified goal developed to support an impending crisis

- Surge is an immediate increase in production output achieved by augmenting the capacity required to produce the program buy
- Surge operates within a different legal, procedural, and financial environment than the normal peacetime condition
- Surge applies only to the current producers in the Defense Production Base and does not disrupt the civil economy
- Surge capacity is not constrained by existing facilities and equipment but rather is constrained only by time and willingness to invest.

Definition: Industrial surge is an immediate increase in production output achieved by modifying the operating environment and augmenting the peacetime production capability by timely investment in facilities, tooling, equipment, inventories, and labor.

(4) Mobilization terms and references:

Objective: The mobilization objective is to rapidly increase production output across a broad spectrum of products drawing extensively from the entire national economy.

Assumptions:

- Nonessential commercial manufacturing will be converted to defense production
- The Government will control many of the production resources
- The procurement process will be streamlined
- The master urgency list will be revised.

Definition: Industrial mobilization is a rapid build up of production involving large production multiples that require major new facilities and employment levels, the diversion of civil sector output, and at least moderate disturbance of the national civil economy.

Developing an understandable data collection format: DoD currently has two approved data collection formats for industrial preparedness planning that are described in detail in DoD 4005.3-M. One is the DD Form 1519-2 (see Appendix A) which is an industrial facility survey used to:

- Provide a basis for planning effective utilization of a facility in time of emergency and to supplement current acquisition data
- Serve as a reference document for answering questions concerning the production capabilities and physical properties of the facility
- Assist claimant activities in ascertaining where specific production can be obtained.

A DD Form 1519-2 will be completed upon request by the appropriate ASPPO, in consultation with plant management. The form is not to be used as a mail questionnaire. Upon completion the ASPPO will forward a copy of the form to the requesting activity (program office).

The other format is the data item description DD Form 1664. Under DoD FAR Supplement 8.07g., solicitations and the resulting contracts for selected systems and items may contain a DID requiring IP planning data. The requirement for these planning services and data should be included in the contract schedule and describe, in detail, the required end item of supply, specific services, and data by separate line item.

Funding source for the DID normally will be that used to fund the designated system at the time the DID is used. The contracting officer may elect to fund the DID as a separate contract line item or as part of the contract's total data requirement cost in an appropriate overhead account. The proper use of the DID will require close coordination between the contracting officer, the PM, and the IP personnel, including the ASPPO.

A company's acceptance of the DID indicates a willingness to provide information about production capabilities, physical characteristics, and certain other required data. At a minimum, this information shall include the following:

- An official point of contact for conducting and maintaining the planning process within the participating company
- Information required to develop realistic production schedules and subcontractor production schedules
- Information on bottlenecks or changes affecting the company's ability to provide the desired production.

There are only two approved DID's for industrial preparedness planning. DoD DI-P-7046 (Appendix B) is available for use by all DoD components. Specific tailoring downward is allowed in the instructions block to fit the particular needs of the military Service. Army DI-P-1634 (Appendix C) is designated for production surge planning.

Program managers should note that while the above mentioned forms are available for use in industrial

preparedness data collection, the forms were not developed with the integration of industrial preparedness into the acquisition process in mind. Many of the industrial preparedness issues described in other sections of this guide will not be addressed using either the DD Form 1519-2 or the DID. Additionally, DoD components are not consistent in their use of these forms and in many instances have invented alternate forms and questionnaires to satisfy the changing data requirement.

With the increased use of computers for data analysis, OSD and the Joint Staff have recently agreed that a standard data collection format which defines the common terms and references and the essential industrial information must be developed. A DoD steering committee is being formed to organize and conduct such an effort. This section will defer to that effort and not attempt to draft a data collection format here.

Until the new format is completed, program managers are encouraged to consult with the appropriate industrial preparedness office to take advantage of the existing forms and techniques.

Specifying an effective government/industry interface procedure: The Navy's 1985 Mark 46 Torpedo study clearly demonstrated the essentiality of direct government/industry interface in collecting industrial base data. Industry knows the peacetime production environment and the restrictions to increasing production output much better than government. Government must rely on industry to provide insights on "the way it is now." However, the majority of industry's representatives are not attuned to the different production environments that would exist during periods of surge or mobilization. If peacetime rules and policies are used to develop surge and mobilization production plans, the costs will be larger than necessary and the lead time forecasts may be too pessimistic. Industry must rely on government to provide insights into the "what-if."

For all intents, this kind of dialog does take place between the program manager and the prime contractor. However, except for some selected subcontractor production readiness reviews, direct government/industry interface deteriorates rapidly (almost exponentially) the further one descends into the lower production tiers. During the 1985 Joint Logistics Commanders' foreign dependency study, visibility into the lower tiers was found to be the exception, with many program managers relying on their prime contractors to coordinate the subcontractor/vendor base.

The issue, then, is how to effectively extend visibility into the lower production tiers so that critical production bottlenecks can be identified and fixed. One solution is to have the prime contractor collect industrial preparedness data from his subcontractors as a contract task. While this option may have the appearance of utility, it has some rather substantial drawbacks:

- The prime contractors can include an industrial preparedness data clause in their subcontracts, but can do little to ensure a proper pass through from the subcontractors to their lower tiers
- Many subcontractors consider some essential industrial preparedness data to be proprietary and will be reluctant to give it to another contractor
- It would too expensive to fund the prime contractor to act as the government interface and visit each of the manufacturers providing industrial preparedness data
- The prime contractor will only be concerned about his system's component production and may not consider the industrial preparedness production requirements to support other systems
- ASPPOs, who are responsible for ensuring that manufacturers do not plan beyond their capability, may not be informed of the planning requirement.

A second solution is to adopt a two-year industrial planning cycle that makes maximum use of the industrial specialist/ASPPO assets that are currently in place (see 2.1, 2.2). The advantages to this solution are:

- The two-year planning cycle can be better synchronized with the two-year POM cycle
- Intense planning can be concentrated on those manufacturers supporting multiple weapon systems
- DoD can reduce the need for repetitive data requests which is a frequent contractor complaint
- Procedures already exist for the ASPPOs to collect industrial information from lower tier manufacturers.

While the following discussion is oriented toward systems that are being actively managed by a program office, the technique can be used for all items that require industrial preparedness planning. In fact, the universal adoption of the methodology will help to foster better communication between the acquisition and industrial

preparedness communities. ***Year one*** is solely devoted to establishing the industrial preparedness planning network, that is, identifying all the contractors that will be asked to participate in the industrial preparedness program. The first year procedures are described below.

Step 1 — As a part of the production readiness review directed in DoDD 5000.1 and DoDI 5000.38, the program manager will meet with the prime contractor to review the bill of material and subcontractor/vendor list (work breakdown structure). The PM and prime contractor will jointly identify key subcontractor and vendors based upon evaluation factors of components complexity, essentiality, and risk. The program manager will identify the appropriate ASPPO that has a component manufacturer's plant under his jurisdiction and forward a request to conduct an on-site interview.

Step 2 — Each ASPPO will conduct an on-site interview with the respective component facility representatives to review their bills of material and work breakdown structuring.

Using the same evaluation criteria is in Step 1, the ASPPO and plant representative will jointly select those critical next-level subcontractors that are industrial preparedness planning candidates. Each ASPPO will identify the ASPPOs having the manufacturers within their jurisdictions and will forward a request to conduct an on-site interview.

Step 3 — The process outlined in Step 2 will continue down the production tiers until all critical subcontractors/vendors are identified. Upon completing the survey, each ASPPO will send one copy to the initiating program manager's office and one copy to the next higher ASPPO.

Step 4 — The initiating office will become the integrating office. When all of the subcontractors responses are received, a complete vertical-tier diagram will show the critical content and key manufacturers of the weapon system.

Step 5 — Each program office will forward the vertical tier diagram to the respective DoD consolidation. The IPP office will review the consolidated list and select those manufacturers that will require a detailed surge and mobilization production plan.

Year two will be used to accomplish the detailed planning. As before, the planning procedures can be described in sequential steps.

Step 1 — The list of items selected for planning are sent to each cognizant ASPPO with a request to conduct a follow-up visit.

Step 2 — Each ASPPO will schedule an on-site visit with each manufacturer and complete the requested contingency manufacturing plan. This single visit will allow the manufacturer to consider the complete critical plant loading for all of his defense production.

Step 3 — Each ASPPO will forward copies of the manufacturing plans to the IPP office, each affected program office, and each next higher ASPPO.

Step 4 — The IPP office can use the plans to provide input to the production base analysis and to identify multiweapon, industrial sector level issues that could require follow-up study. The program offices can use the plans to balance production capability and to refine investment strategies. The ASPPOs will improve their knowledge of the manufacturing capabilities in their area of responsibility so that they can better accomplish their role as a source of production capability information.

Follow-on planning cycles can be used to add new weapons and revise/refine the list of IPP candidates.

DEPARTMENT OF DEFENSE OASD(A & L)

INDUSTRIAL FACILITY SURVEY

INDUSTRIAL PREPAREDNESS PLANNING PROGRAM

NOTE: FOLLOW IMPLEMENTING INSTRUCTION WHEN COMPLETING THIS FORM. Use of the data entered on this form by the Department of Defense will be limited to duly accredited officials who are subject to penalties for unlawful disclosure. The protection given to data relating to your facility under the Espionage Act and other statutes will confine accessibility within the Government to those responsible for procurement, production preparedness planning, and defense of the United States.

Form Approved
OMB No. 0704-0045
Exp. Date: Nov 30, 1987

SECTION I - IDENTIFICATION

1. PARENT COMPANY NAME		ADDRESS (Street, City, State and ZIP Code)	
2. SUBSIDIARY OR DIVISION		ADDRESS (Street, City, State and ZIP Code)	
3. PLANT SURVEYED		ADDRESS (Street, City, State and ZIP Code)	
4. PLANT INDEX NUMBER	5. DATE OF SURVEY	6. DATE OF PREVIOUS SURVEY	7. GEOGRAPHICAL OR UTM COORDINATES

SECTION II - CURRENT PRODUCTION

8. ITEM	9 UNIT OF MEASURE	10 OUTPUT DURING A TYPICAL PRODUCTION MONTH		11. PERCENT OF PRODUCTION ASSEMBLED FROM COMPONENTS OF OUTSIDE SOURCES
		UNIT VOLUME a	VALUE (In Thousands of dollars) b	

DD Form 1519-2, OCT 85

Previous edition is obsolete.

SECTION III - MAXIMUM PRODUCTION CAPABILITIES OF FACILITY

This section offers management the opportunity to specify military type items he believes he is best suited to manufacture in the event of an emergency or war. If management has elected to reserve a portion of his plant's production capacity for the wartime production of essential civilian items, all entries in this Section should relate only to the remaining capacity. Specifically, management is urged to estimate the maximum production capabilities of his facility alternatively by *(1)* listing the items, in column 12, which would constitute the optimum product mix to avoid unused capacity in his facility, and to indicate, in column 15a, the maximum production rate for each item when all are produced concurrently and *(2)* to indicate in column 15b the maximum production rate for each item if his entire plant capacity was devoted solely to the production of that one item. *(See instructions for assumptions applicable to column 15b).* The information called for by this Section III is needed by procuring activities in developing "desired schedules of production" that are consistent with the estimated production capabilities of the facility and which are subsequently submitted to management for review and acceptance as "Emergency Production Schedules". Plans will be extended to subcontractors and suppliers to insure timely deliveries of major subassemblies and pacing components to be incorporated into military items as may be planned for mobilization production in this facility.

12. ITEM	13 UNIT OF MEASURE	14 CHECK ITEMS PRODUCED BY THIS FACILITY	15 ESTIMATED MAXIMUM OUTPUT PER MONTH		16 PERCENT OF PRODUCTION ASSEMBLED FROM COMPONENTS OF OUTSIDE SOURCES *(Relate to col 15a)*	17 CONVERSION TIME *(Months)*	
			UNIT VOLUME ALL ITEMS PRODUCED CONCURRENTLY a	UNIT VOLUME EACH ITEM PRODUCED SINGULARLY b		INITIAL PRODUCTION a	MAXIMUM PRODUCTION b

18. MAJOR PRODUCTION BOTTLENECKS *(i.e., what difficulties and what assistance would be expected during initial and subsequent stages of producing above items?)*

SECTION IV - PLANT DESCRIPTION

A. EMPLOYMENT DURING TYPICAL PRODUCTION MONTH

	NUMBER	WORK HOURS PER SHIFT PER DAY	DAYS PER WEEK
19. TOTAL EMPLOYMENT			
20. PRODUTION WORKERS, TOTAL ALL SHIFTS			
1ST SHIFT			
2ND SHIFT			
3RD SHIFT			
21. ENGINEERING, RESEARCH AND DEVELOPMENT EMPLOYEES INCLUDED IN ITEM 19 ABOVE			

B. PLANT BUSINESS - TOTAL

22 DOLLAR VALUE OF BUSINESS

a. DURING FISCAL YEAR ENDED _____ 19 ____
$

b. ESTIMATED ANNUAL MAXIMUM
$

C. TYPE OF PRODUCTION

23 DESCRIPTION *(Check appropriate items)*

a. ☐ ASSEMBLY ONLY
☐ ASSEMBLY AND PARTS MFG
☐ ASSEMBLY, PARTS MFG AND FOUNDRY WORK

b. ☐ MASS PRODUCTION
☐ JOB LOT
☐ CUSTOM

c. OTHER *(Specify)*

D. MISCELLANEOUS PLANT DATA

24 FLOOR SPACE *(Square Feet)*

a. PRODUCTION AND TESTING

b. ENGINEERING, RESEARCH AND DEVELOPMENT

c. STORAGE *(Indoor)*

d. TOTAL *(Include all other floor space)*

25 OUTDOOR STORAGE *(Square Feet)*

a. COVERED

b. UNCOVERED

26 ACREAGE

a. OCCUPIED

b. AVAILABLE FOR EXPANSION

27. DOCK FRONTAGE AT PLANT

INLAND WATERWAY ☐ YES ☐ NO

DEEP SEA ☐ YES ☐ NO

28 IS RAIL SIDING ADJACENT TO PLANT ☐ YES ☐ NO

29 FOR THE OUTPUT OF PRESENT AND PREFERRED WARTIME PRODUCTS, IS TOOL DEPARTMENT CAPABLE OF PRODUCING *(Check appropriate items)*

JIGS ☐ YES ☐ NO

DIES ☐ YES ☐ NO

FIXTURES ☐ YES ☐ NO

E. PLANT EQUIPMENT

30 LIST GENERAL CLASSES OF PRODUCTION EQUIPMENT

31 LIST TYPES OF INSPECTION AND TESTING EQUIPMENT

SECTION V - REMARKS *(Use additional sheets if necessary)*

SECTION VI - RESPONSIBLE OFFICIALS

32. COMPANY OFFICIAL TO CONTACT FOR MOBILIZATION PLANNING

a. NAME *(Print or type)*	b. TITLE	c. ADDRESS *(Include ZIP Code)*	d. AREA CODE AND PHONE NO.

33. COMPANY OFFICIAL INTERVIEWED *(If different from above)*

a. NAME *(Print or type)*	b. TITLE	c. ADDRESS *(Include ZIP Code)*	d. AREA CODE AND PHONE NO.

34. SURVEYED BY *(Representative)*

a. NAME *(Print or type)*	b. TITLE	c. OFFICE	d. AREA CODE AND PHONE NO.

e. TYPED NAME AND TITLE OF ASPPO OR HIS AGENT	f. ASPPO CODE	g. SIGNATURE	h. SVC OR BRANCH

APPENDIX B

DI-P-7046

DATA ITEM DESCRIPTION	2. IDENTIFICATION NO(S).	
	AGENCY	NUMBER
1 TITLE Industrial Preparedness Planning Data	DoD	DI-P-7046
3 DESCRIPTION/PURPOSE 3.1 IP Planning is conducted jointly among DoD Components and industry to provide a means for correlating industrial capabilities and military requirements for the orderly transition of this capability to meet these requirements during a national emergency or crisis. 3.2 To acquire pre-M-day industrial preparedness production planning data from industry essential for (1) current production, (2) surge requirements in emergency situations short of full mobilization, and (3) increased production during periods of declared national emergency (mobilization).	4 APPROVAL DATE 14 APR 1978	
	5 OFFICE OF PRIMARY RESPONSIBILITY OUSDR&E(AM) IR	
	6 DDC REQUIRED	
	8 APPROVAL LIMITATION	
7 APPLICATION/INTERRELATIONSHIP 7.1 The DID is included in solicitations and contracts for selected systems and items designated for IP Planning. 7.2 IP Planning data normally is developed by the responsible Armed Services Production Planning Officer (ASPPO) in consultation with the Industry Planning Representative (IPR) designated by contractor management for selected critical items. 7.3 Canceled DIDs: DI-A-30000, DI-A-30009, DI-A-30017 UA-102-XO	9 REFERENCES (*Mandatory as cited in block 10*) DoD 4005.3-M	
	MCSL NUMBER(S)	

10 PREPARATION INSTRUCTIONS

10.1 Guidance, procedures, forms, and instructions relating to the preparation of IP plans are contained in the DoD 4005.3-M, "Industrial Preparedness Planning Manual."

10.2 The IP Planning data shall provide an indepth analysis for all support entries with respect to proposed Industrial Preparedness Measures (IPMs). Sufficient detail must accompany each proposed IPM to fully describe all estimated costs by FY, work subdivisions, required equipment, and any pertinent information related to the IPM and deemed necessary for justification of funding.

10.3 The IP Planning data shall identify: (1) situations that are crucial to the current program schedules such as critical sources, (foreign and sole sources) materials, capacities, long leadtimes, skills, and personnel. IPMs or other corrective measures including estimated costs and leadtimes will be included; (2) surge capability and IPMs required to increase the average monthly peacetime production as specified in the data elements requested; and (3) allocated production under mobilization conditions normally over a 24-month period after the planned M-day.

10.4 The Make-or-Buy Programs Policies and Procedures and the Contractor Procurement System Review will be used, as appropriate, in developing the required IP Planning data.

10.5 The attached data elements format or equivalent shall be included in the IP Planning.

DD FORM 1 JUN 68 1664

Continuation of block 10.

Minimum S/M (M-day) Data Elements

S/M (M-day) October 1, 19xx and/or FYxx
Minimum sustaining rate (MSR)_____per month
(ea. K.)

1. Desired delivery schedule (when applicable)

M+1	4	7	10	13	16	19	22
2	5	8	11	14	17	20	23
3	6	9	12	15	18	21	24

2. Contractor's allocated production Shift/equivalent

M+1	4	7	10	13	16	19	22
2	5	8	11	14	17	20	23
3	6	9	12	15	18	21	24

3. Maximum attainable w/existing facilities from warm base Shift/equivalent

M+1	4	7	10	13	16	19	22
2	5	8	11	14	17	20	23
3	6	9	12	15	18	21	24

4. Maximum attainable w/existing facilities from cold base

M+1	4	7	10	13	16	19	22
2	5	8	11	14	17	20	23
3	6	9	12	15	18	21	24

5.* Maximum attainable w/industrial preparedness measures (IPMs)

M+1	4	7	10	13	16	19	22
2	5	8	11	14	17	20	23
3	6	9	12	15	18	21	24

A - Items/Sources - Subcontractor Planning Extended

B - Description of IPMs

C - Remarks

* - To be completed if allocated production (item 2) is lower than desired delivery schedule (item 1) in leadtime or production output allocated.

Note - Consider the following factors when compiling the above data:

(1) Product mix as indicated by other planning schedules currently at the same contractor's plant.

(2) Effects of pacing component leadtimes. Identify pacing components and sole and/or foreign source dependency.

APPENDIX C

DI-P-1634

DATA ITEM DESCRIPTION	2 IDENTIFICATION NO S: AGENCY	NUMBER
1 TITLE Production Surge Plan (currently under revision)	Army	DI-P-1634
3 DESCRIPTION/PURPOSE 3.1. The Production Surge Plan delineates a contractor's capability to accelerate rapidly and sustain production, utilizing existing facilities and equipment without a declared national emergency, declaration of war, or mobilization and use of emergency war powers. 3.2. The Production Surge Plan provides data on the maximum sustained production rate, longlead, critical, and pacing (cont'd)	4 APPROVAL DATE	
	5 OFFICE OF PRIMARY RESPONSIBILITY ARRCOM	
	6 DDC REQUIRED	
7 APPLICATION/INTERRELATIONSHIP 7.1. This DID should be applied in solicitations/contracts for which a production surge capability for select critical items is required. 7.2. The Contract Data Requirements List (DD Form 1423) should require that any production changes that impact the Production Surge Plan be submitted as revisions within 2 weeks of their occurrence. 7.3. This Data Item Description may be used independently, with, but not instead of DI-P-7046.	8 APPROVAL LIMITATION	
	9 REFERENCES (Mandatory as cited in block 10)	
	MCSL NUMBER(S)	

10 PREPARATION INSTRUCTIONS

10.1. General - The Production Surge Plan shall delineate the contractor's capability to accelerate production rapidly, utilizing existing facilities and equipments in a peacetime environment (no declared national emergency, declaration of war, or mobilization and use of emergency war powers). The plan shall be predicated on utilization of peacetime program priorities to obtain materials, components, and other industrial resources necessary to support and accelerate production requirements.

10.2. Format - Unless otherwise specified on the Contract Data Requirements List (DD Form 1423), the Production Surge Plan shall be in the contractor's format.

10.3. Content- At a minimum, the Production Surge Plan shall consist of the following:

a. The maximum sustained rate of production utilizing a single work shift (1-8-5), a single work shift supplemented by authorized premium pay (overtime effort), a double work shift (2-8-5), and a triple work shift (3-8-5), to include a production buildup schedule by the month until the maximum at each level is attained.

b. Two lists, one of subcontracted and one of nonsubcontracted items, by nomenclature, part number, leadtime, and production buildup of long leadtime, critical, or pacing items that could impact adversely the production rates identified in paragraph 10.3.a. Subcontractors and vendors shall be identified by name and address for each item. This requirement shall flow down to whichever subcontractor tier (level) is necessary to identify adequately the long leadtime, critical, and packing items.

c. Identification of all personnel requirements including how additional (cont'd)

DD FORM 1 JUN 88 1664 REPLACES DSA FORM 602 WHICH IS OBSOLETE

3. Description/Purpose (cont'd)

items, personnel requirements, other contracts with surge production provisions, and probable surge impact. This data provides for surge (accelerated production) planning of selected items that are identified on the surge items list.

10. Preparation Instructions (cont'd)

c. personnel will be recruited, trained, and assigned.

d. A list of contracts being performed at the contractor's facility that have a production surge provision or reasonably could be presumed to be surged. The list shall identify the contract number, the items, and the Defense Materials System and Defense Priorities System priorities assigned to each contract.

e. What impact surging this contract would have on the performance of any other Government contract that might be surged concurrently with this contract. What impact surging this contract would have on the contractor's commercial business.

f. List and identify strategic and critical materials and precious metals by type and quantity required to attain each of the production levels identified in the Production Surge Plan. Additionally, identify and substitute material that could be utilized for each of the above categories.

g. List of tooling and/or equipment down to the lowest tier subcontractor that could be acquired that would increase production rates and remain within the current facilities limitations. Estimate the cost (including installation costs) and delivery leadtime for the acquisition of the tooling and/or equipment. Data obtained under this paragraph will not be used in the preparation of the basic plan but may be used by the Government for developing additional surge capability if deemed essential.

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 12.1

VERSION: ORIGINAL

DATE: 22 APRIL 1988

1. TOPIC

Industrial Base Considerations in the Integrated Logistics Support Plan (ILSP)

2. TOPIC SUMMARY

- ***Industrial base objectives to support readiness and sustainability (R&S) should commence during concept development phase and continue throughout the system lifecycle.***

- ***After a system is fielded, mobilization logistics support must be available to ensure that the systems can be sustained on the battlefield.***

3. REFERENCES

—DoDD 5000.39, "Acquisition and Managment of ILS for Systems and Equipment"

—DoDD 5000.40, "Reliability and Maintainability"

4. POINTS OF CONTACT

- The PM's ILS Manager

- The government's logistic element that provides logistics support to the PM's office

- The contractor's ILS manager

5. ABBREVIATIONS

DMPL	Depot Mobilization Planning List
ILS	Integrated Logistics Support
ILSMT	Integrated Logistics Support Management Team
ILSP	Integrated Logistics Support Plan
ISP	Integrated Support Plan
LCC	Life Cycle Cost
LSA	Logistic Support Analysis
MMEC	Military Mission Essentiality Code
R&S	Readiness and Sustainability

6. DEFINITIONS

- ***Integrated Logistics Support (ILS)*** is a disciplined, unified, and iterative approach to the management and technical activities necessary to: (a) integrate support considerations into system and equipment design (b) develop support requirements that are related consistently to readiness objectives, to design, and to each other (c) acquire the required support, (d) provide the required support during the operational phase at minimum cost.

- ***Integrated Logistics Support Management Team (ILSMT)*** is a team of Government and industry functional and management personnel formed to advise and assist the ILS manager with planning, coordinating, monitoring schedules and contractor performance, ensuring accuracy and timeliness of Government inputs, and complying with applicable requirements, regulations, specifications, and standards.

- ***Integrated Logistics Support Plan (ILSP)*** is the formal planning document for logistics support. It is kept current through the program life. It sets forth the plan for operational support, provides a detailed ILS program to fit with the overall program, provides decision-making bodies with necessary ILS information to make sound decisions in system development and production and provides the basis for the ILS portion of procurement packages.

- ***Integrated Support Plan (ISP)*** is a comprehensive plan to demonstrate how a contractor intends to manage and execute his ILS program.

7. POLICY

- The primary thrust of ILS is the early identification of Readiness and Supportability (R&S) objectives and the necessary mechanisms to achieve system readiness objectives at an affordable Life Cycle Cost (LCC). In order to satisfy industrial base concerns they must be addressed in parallel with ILS issues, with the focus of attention on the ultimate supportability of the system during mobilization.

- IP readiness and supportability issues must be considered early in the program. The ten ILS elements that must be considered are (1) Maintenance Planning, (2) Manpower and Personnel, (3) Supply Support, (4) Support Equipment, (5) Technical Data, (6) Training and Training Support, (7) Computer

Resources Support, (8) Facilities, (9) Packaging, Handling, Storage and Transportation, and (10) Design Interface. Industrial base concerns are especially important in (1) Maintenance Planning and (3) Supply Support.

8. DISCUSSION

Maintenance planning is considered to be the lead ILS analytical activity and provides input to the development of all of the remaining logistics support elements. However, the supply support element addresses perhaps the most important IP area. Supply support actions are required to identify and obtain the spares and repair parts needed to support peacetime and wartime readiness objectives.

Regardless of the format or equation, a quantitative feasibility analysis of industry's capability to handle mobilization repair workload must be the basis for planning and negotiating private sector involvement in mobilization repair or production. The program manager has responsibility for this type of ILS planning. The following steps should be considered by the program manager. In all probability the PM will use his ILS manager to prepare his plan for surge or mobilization of maintenance and repair parts. The development of wartime and peacetime IP Readiness and Supportability (R&S) objectives should be accomplished by Milestone I. The following question must be asked to the ILS manager, and incorporated in the analysis shown in Table 12.1-1 below.

What are the essential spares and repair parts needed for mobilization? The Use Study (MIL-STD-1388-1A) is the prerequisite task to all others in the LSA program and can be useful in answering this question. The study will develop an analysis of how the new system will be used and supported in its mission area in both peacetime and wartime. The Use Study identifies operating requirements (such as mission frequency and duration, miles driven, operating hours, rounds fired), number of systems per support unit, environmental factors, and other descriptions of operation and support characteristics. The study is based initially on an evaluation of an existing system performing similar functions in the mission areas with all values adjusted to the mission need of the new systems. This should form the basis for Industrial Preparedness to be included in Operation and Support planning.

One of the problems that continually plagues ILS and IPP is the lack of credible information early enough to be of use in making these analyses. When adequate information is not available, assumptions must be based on whatever information is available. Therefore, the purpose of the Use Study is to conduct a single analysis to identify all the information that will be needed by any ILS discipline, including industrial preparedness planning, to complete required analyses. With only one document serving as the source for all quantitative information, the task of creating a support system for equipment is much simpler and more effective.

The next step is to look at the subassembly or component level for the major systems specified in the work breakdown structure. Applying an item essentiality work breakdown structure, each system will yield a basic array of items for which to plan for mobilization repair. A Military Mission Essentiality Code (MMEC) should be assigned to each critical component based upon the mission essentiality of the end item, and subsystem-essentiality to the weapon system's primary or secondary mission. For major weapons systems expected to be on the DMPL (Depot Mobilization Planning List), minimum maintenance specifications should be developed early on to be implemented in a crisis or wartime. Minimum maintenance specifications should be structured to make the weapon systems only serviceable — not good as new. The workload planning objective for end items should be to return them to operations after minimum maintenance — repair required for safety and combat essentiality. Plans should be made to defer other non-essential maintenance actions. An essential ingredient of comprehensive maintenance planning is advising firms having contracts for repair of items on the DMPL and firms in the industrial base that are expected to manufacture the spares, components or subassemblies that they should be prepared to surge the production rate of such items in a crisis or during wartime. Obviously, to conduct proper planning, these firms must know the ultimate production rate that is anticipated.

TABLE 12.1-1
INDUSTRIAL BASE ISSUES IN ILS

PROGRAM INITIATION/ MISSION NEED MS 0	CONCEPT DEMONSTRATION/ VALIDATION MS I	FULL SCALE DEVELOPMENT MS II	FULL RATE PRODUCTION MS III	LOGISTICS READINESS & SUPPORT MS IV	MAJOR UPGRADE/ SYSTEM REPLACEMENT MS V
1. Develop Industrial Base Objectives to Support Readiness & Sustainability (R&S). Is the System Expected to be a CIL Item? 2. Ensure that the Integrated Logistics Support Management Team (ILSMT) Advises the ILS Managers on Industrial Base Issues 3. Key ILS Plans such as the Integrated Logistics Support Plan (ILSP) and the Integrated Support Plan (ISP) Must Receive Industrial Base Input from Government and Contractor ILS Managers. 4. The ILS Managers Should Become Actively Involved in the Mission Need and Use Studies By Providing IP Challenges and Objectives. 5. Ensure that the Logistics Support Analysis (LSA) and the Logistics Support Analysis Record (LSAR) Include IP Readiness and Supportability Objectives. 6. Establish Preliminary Support Concept to Include Industrial Base Capabilities of Supporting Battle Damage and Minimum Essential Repair.	1. ILSP Must Have Specific Industrial Base Tasks to Be Accomplished During Dem/Val. Specific Industrial Base Issues Pertaining to the Maintenance Concept and System Readiness Should Be Covered. 2. Use Study Should Identify Wartime Employment Scenarios and Industrial Base Implications. 3. Wartime Industrial Base Issues Must Be Accomplished By Dem/Val. 4. Industrial Base Repair Level Analysis, (What Should Be Repaired at What Levels, When Repair Is Not Required) Should Start At MS I and Continue Thru FSD, MS II. Determine Mission Essentiality For Repair of Subsystems and Components. 5. Battle Damage Assessment and Industrial Base Repair Programs Should Start in this Phase and Continue Thru FSD. Development of Rapid Assessment and Expedient IP Repair Procedures Should Be Started. 6. IPP for the ILS Program Must Be Considered Early in the Concept Demonstration/Validation Phase. 7. Contractor And Government ILS Managers Should Influence IP Maintenance and Repair Support into Design Concept. This Should Be Integrated into the System Engineering Process. 8. Baseline Support Concept and Maintenance Concept Will Include IP Issues. 9. Survivability Analysis Serves to Influence System and Component Design and to Identify the IP Requirements for Maintenance and Repair 10. Identify Wartime Spares and Repair Parts Needed and Determine Industrial Base Supply Capability. This Analysis Will Continue thru FSD. 11. Ensure That Baseline Support Concept Considers Wartime Emergency Repair, Availability of Parts to Influence Design.	1. Wartime Industrial Base Objectives in Support or R&S Objectives Must Be Established By MS II. 2. ILS Manager, in Conjunction with Designer, Must Advise Contractor of Supportability Designing for FSD to Include IP Impacts on Maintenance & Spares. Similar Systems Should Be Analyzed To Avoid Unrealistic R&M IP Requirements. 3. Detailed IP Oriented Maintenance Tasks Will Be Developed. 4. Ensure that IPP Issues are Included in the Supportability T&E on Adequacy of ILS Program to Meet Wartime Supportability Objectives. 5. Plan for Industrial Base Post Production Support to Include Component Spares And Repair Part Emergency Support During Surge or Mobilization. 6. Evaluate Logistics Supportability Effectiveness of Industrial Base Capability to Support Emergency Maintenance During Surge and Mobilization. 7. Ensure that Support Readiness Reviews Include IPP Surge and Mobilization Issues. In Particular DT&E And OT&E Design Deficiencies Impacting on Wartime Industrial Base Support Should Be Corrected or Solutions Identified That Can Be Applied Prior to Development. 8. Complete Post Production Support Plan (PPSP) Prior to MS II. Industrial Base Issues Such as Surge and Mobilization Facilitization, Rolling Inventory Requirements, Disposition of ST/STE, Second Sourcing for Emergency Support of Components, Subassemblies, Spares and Repair Parts. Disposition of Other Equipment That May Be Laid Away Must Be Included.	1. Ensure that Production Items Meet Requirements for Emergency Industrial Base Maintenance Support During Surge and Mobilization. 2. During Transition to Production, Ensure that Industrial Base Planned Maintenance Support During Surge and Mobilization Remain Compatible with Late System Design Changes.	1. Conduct Industrial Base Capability Assessment of Surge and Mobilization Post-deployment Supportability.	1. Ensure that Industrial Base Concerns are Considered in all Product Improvement Efforts.

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

NUMBER: 13.1
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1. TOPIC

International Cooperative Efforts

2. TOPIC SUMMARY

- ***International cooperation in development and production can be good for industrial surge and mobilization if the implications for meeting national security objectives are considered during the negotiation of memoranda of understanding and other agreements.***

3. REFERENCES

—DoDD 2010.6, "Standardization and Interoperability of Weapons Systems and Equipment Within the North Atlantic Treaty Organization"

—DoDD 5000.1, "Major and Non-Major Defense Acquisition Programs"

—DoDI 4005.3, "Industrial Preparedness Planning"

—DoD 4005.3M, "Industrial Preparedness Planning Manual"

—DoD FAR Supplement Part 25, "Foreign Acquisition"

4. POINTS OF CONTACT

- OSD Director for International Acquisition
- DoD Component industrial preparedness planners
- Competition advocates

5. ABBREVIATIONS

FMS	Foreign Military Sales
MOU	Memorandum of Understanding
NATO	North Atlantic Treaty Organization
RDT&E	Research, Development, Test and Evaluation
RFP	Request for Proposal
RSI	Rationalization, Standardization, and Interoperability

6. DEFINITIONS

- ***Industrial Base*** is that part of the total privately-owned and government-owned industrial production in the United States and Canada that is or shall be made available in an emergency for the manufacture of items required by the U.S. Armed Forces and selected allies
- ***Foreign Source*** is any source of supply or manufacture outside the continental United States or Canada
- ***Foreign Dependency*** is an immediate, serious logistics support problem affecting the combat capability of the United States caused by the unavailability of a foreign sourced item.

7. POLICY

- The Department of Defense shall initiate and carry out methods of cooperation with its allies in defense equipment acquisition to improve NATO's military effectiveness and to provide equitable economic and industrial opportunities for all participants (DoDD 2010.6)
- The United States shall pursue...establishment of general and reciprocal procurement Memoranda of Understanding (MOU) with NATO member nations. These are intended to encourage bilateral arms cooperation and establish regular review of armaments programs and trade and to make efficient use of alliance resources through expanded competition. Waiver of "Buy National" restrictions should be sought and applied wherever possible to support this objective (DoDD 2010.6)
- Foreign participation as subcontractors to U.S. prime contractors shall be encouraged, as well as U.S. industry performing as subcontractors to NATO prime contractors (DoDD 2010.6)
- Teaming, licensing, or subcontracting arrangements between firms of two or more NATO nations are desirable and encouraged. Such arrangements may be entered into prior to or after a contract is awarded (DoDD 2010.6)
- In R&D projects which may have application for two or more NATO nations, the acquisition

strategy shall encourage NATO industrial participation at the earliest possible time. One possible strategy is to establish NATO industrial participation in the Request for Proposal (RFP) as a primary source selection factor to be considered in the evaluation of proposals, together with technical, schedule, cost, and management elements. In other circumstances, it may be appropriate to obtain an option for the Government to require the prime contractor (and his subcontractors) to license contractors of participating countries at a later date to manufacture the system or components thereof and, in conjunction with such license to provide the data, user rights, know-how, and other technical assistance that may be necessary to establish a viable second production source (DoDD 2010.6)

- DoD components shall...afford NATO contractors from countries with whom we have general and reciprocal MOU the opportunity to compete for DoD procurements (DoDD 2010.6)

- DoD components will limit industrial preparedness planning to producers located in the U.S. and Canada (DoDI 4005.3)

- Planning will identify foreign dependency on items, components and/or materials that could impact on US and Canadian producers during surge or mobilization. These dependencies will be reported and briefed in the Production Base Analysis (DoDI 4005.3)

- DoD components shall limit industrial preparedness planning to producers located in the United States and Canada; however, planning should identify foreign sources who are defense suppliers to planned U.S. and Canadian producers (DoDI 4005.3)

- Cooperation with U.S. allies in the acquisition of defense systems will be maximized to achieve the highest practicable degree of standardization and interoperability of equipment, and to avoid duplication of effort (DoDD 5000.1)

- Mobilization requirements will be a factor considered in evaluating opportunities for international competition (DoDD 5000.1)

- A strong industrial base is essential for a strong defense...the impact of DoD acquisition on the industrial base must also be considerc both for the near term and long range implications (DoDD 5000.1).

8. DISCUSSION

The OSD Director for International Acquisition is concerned with foreign military sales, offsets, NATO arms cooperative initiatives, and multinational programs, and is responsible for monitoring the "two-way street" trade balance.

DoD's two-way street policies implement the Culver-Nunn Amendments to the 1976-77 Defense Appropriation Authorization Acts. These policies address European concerns that the United States is selling more military materiel to Europe than Europe is selling to the United States. As the European defense industries grow, their governments naturally want an increasing share of the available resources. Today, their defense industries have developed to the point that they can effectively suggest future reductions in U.S. purchases if the United States does not increase its purchases from NATO.

U.S.-NATO cooperation in procurement is important for a variety of reasons. Access to U.S. markets is important to NATO partners for both economic and domestic political reasons. It has an important impact on the ability of our allies to meet their share of NATO financial obligations. Additionally, joint purchases can improve NATO's warfighting posture. However, they can also increase our foreign dependency and have a negative impact on the domestic (U.S. and Canadian) industrial base, particularly when they are not managed to reduce foreign dependency risks.

Part 25 of the DoD Federal Acquisition Regulation (FAR) Supplement provides guidance for foreign acquisition. Subsection 25.7310 (Implementation of Offset Arrangements Negotiated Pursuant to Foreign Military Sales Agreements) provides policies and procedures for placing a percentage of an FMS dollar value in a country with which the FMS agreement has been negotiated. There is no comprehensive U.S. policy with respect to the terms of offset agreements. Formally, the DoD takes a position of noninvolvement. As set forth in the "Duncan Memorandum" of 1978, prepared by then Deputy Secretary of Defense Charles Duncan, offset commitments are the responsibility of U.S. prime contractors. However, the Secretary of Defense or his Deputy can authorize policy exceptions to ensure the successful completion of FMS transactions considered important to the national security of the United States. FMS/offset arrangements currently are in effect for Australia, Belgium, Denmark, the Netherlands, Norway, and Switzerland.

An "offset" is an arrangement between a buyer and a seller that aims to compensate (offset) the buyer's expenditure. Offset arrangements take many forms,

including coproduction, licensed productions, subcontractor production, overseas investment, technology transfer, and countertrade.

Concern about the "success" of all forms of offsets, and the direction of U.S. policy addressing them, has occasioned a variety of Government studies in recent years. Indeed, in a recent extension of the Defense Production Act, Congress mandated an interagency review of the economic impact of offset programs.

Perceptions of the effects of offsets are mixed. While supporters contend that offset offers increase U.S. market share (since sales would be lost to foreign competitors without them) and, consequently, improve the defense industrial base, critics complain that these agreements erode the industrial mobilization base and result in technology transfer that appears later in the form of commercial competition with U.S. firms. Conclusive evidence for either position is lacking.

Despite the obvious potential for multinational programs to affect the domestic industrial base negatively, it appears that offsets and other collaborative weapon programs are not major causes of foreign dependency for weapon programs. Further, there is no inherent conflict between these types of programs and a strong domestic industrial base.

Offsets can have both a primary and a secondary impact on foreign sourcing and foreign dependency. If the offset agreement is to have a portion of the FMS article produced in the purchasing country, then there is no direct impact on the production of the U.S. weapon system. However, a qualified source is now established and may be permitted to compete for production contracts that support U.S. weapon systems. Moreover, if the offset agreement is permitted to be large enough, approaching 100 percent, the prime contractor may be forced to use foreign manufacturing sources even for the portion of weapon production supporting U.S. forces.

Subpart 25.74 (purchases from NATO participating country sources) implements the memoranda of understanding (MOU) between the United States and participating countries. The MOU are detailed in Appendix T of the FAR Supplement and are intended to facilitate the defense of North America and Europe by achieving:

- Greater cooperation in research, development, acquisition, and production
- The most rational use of each nation's respective industrial, economic, and technological resources
- The greatest attainable military capability at the lowest possible cost
- Greater standardization and interoperability of the Alliance partners' weapons systems.

Section 25.7401 states that:

> It is DoD policy... to ensure that sources from participating countries are provided every opportunity to compete on a fair and equal basis with U.S. sources for research and development and for production contracts.

Section 25.7403 states that:

> ...the Secretary of Defense has determined that it is inconsistent with the public interest to apply the restrictions of the Buy American Act and the Balance of Payments Program with respect to acquisition of Defense equipment which is mined, produced, or manufactured in a participating country... As to any end product that is manufactured in the United States, all components from participating countries are treated as components mined, produced or manufactured in the United States for the purpose of determining whether the end product is a domestic source end product.... In reviewing prime contractor subcontracting procedures, the contracting officer shall assure that the prime contract does not preclude participating country sources from competing for subcontracts, except when restricted by national security interest reasons or mobilization base considerations.

While this statement suggests that the health of the industrial base should be a criterion when foreign purchases are considered, contracting officers are not considering the mobilization base when making procurement decisions. There is often neither the recognition that such consideration is necessary nor any implementation procedures to translate a general policy statement into action.

Subpart 25.75 implements the defense cooperation agreements between the United States and the governments of Israel and Egypt. The stated policy of the Department of Defense is to ensure that defense cooperation countries are provided the opportunity to compete on a fair and equal basis with U.S. sources for selected research and development, production, and service contracts. To accomplish this policy, certain "buy national" laws and foreign acquisition restrictions are exempted.

Subpart 27.70 implements the Defense Appropriation Act restriction on the availability of appropriated funds for the acquisition of specialty metals. Specialty metals are defined as:

- Steels where the maximum alloy content exceeds one or more of the following limits: manganese, 1.65%; silicon, 0.60%; or copper,

0.60%; or which contain more than 0.25% of any of the following elements: aluminum, chromium, cobalt, columbium, molybdenum, nickel, titanium, tungsten, or vanadium

- Metal alloys consisting of nickel, iron- nickel, and cobalt base alloys containing a total of other alloying metals (except iron) in excess of 10%

- Titanium and titanium alloys

- Zirconium and zirconium base alloys.

All solicitations and contracts over $10,000 that call for the delivery to the Government of an article containing specialty metals within the six major classes of programs (aircraft, missile and space systems, ships, tank-automotive weapons, ammunition) will contain the clause listed at DoD FAR Supplement subpart 52.225-7011, Preference for Domestic Specialty Metals (major programs). This contract clause requires all specialty metals to be melted in the United States, its possessions, or Puerto Rico unless:

- Satisfactory quality and sufficient quantity cannot be acquired as and when needed at U.S. market prices

- Purchases are made in furtherance of an agreement with a qualifying country as defined by DoD FAR Supplement 25.001.

On the surface, this restriction appears to favor the domestic industrial base. It does, in fact, give preference to U.S. foundries. However, the key word is "melt." Only the melting is restricted, so that any of the ingredients can be purchased from foreign sources. In practice, the specialty metals clause is automatically inserted into all defense contracts for major weapon systems, and the prime contractor is responsible for inserting the clause in each subcontract, with the expectation that the subcontractors, in turn, will continue the flow-down process. U.S. contractors, as permitted by the clause exceptions, may waive the clause requirements from subcontracts with NATO countries, Israel, Egypt, Australia, and Switzerland.

The flow-down provisions of this clause are as unenforceable as all other such requirements. Contractors can only attest that they have, in good faith, passed it to their subcontractors, but have no visibility into the next production tier. Therefore, they assume that the clause is being passed down to the lowest level and that the absence of waiver requests indicates compliance.

In order to monitor the amount of offshore procurement for defense weapon systems, DoD collects information in two ways. Under the Prime Contract Reporting System (DoD FAR Supplement 4.671), defense procurement officers submit reports on DD Form 350 for procurement contracts valued at more than $25,000. The form indicates if the prime contractor is a foreign source. Under the Subcontract-level Reporting System (DoD FAR Supplement 4.670-4), prime contractors awarded contracts exceeding $500,000 and first-tier subcontractors awarded subcontracts exceeding $100,000 are required to report non-U.S. purchases valued at more than $10,000. The subcontracting reporting requirement is made by inserting the clause listed in DoD FAR Supplement subpart 52.204-7005, Overseas Distribution of Defense Subcontracts. DD Form 2139 has been proposed as the required reporting format.

The Trans-Atlantic dialogue on NATO RSI (Rationalization, Standardization, and Interoperability) began in earnest in August 1974 with the passage of the DoD Appropriation Authorization Act for FY75. This act contained the first of a series of Culver-Nunn amendments expressing Congressional interest in NATO standardization. New Culver-Nunn amendments were added to the DoD Appropriation Authorization Acts of FY76 and FY77. The latter provides for waiver of the Buy American Act in the larger interest of NATO standardization, expresses the sense of the Congress that "greater reliance on licensing and coproduction agreements" within NATO would facilitate standardization, and "encourages the governments of Europe to accelerate their present efforts to achieve European armaments collaboration among all European members of the Alliance" to obtain more realistic cooperation in defense procurement on the basis of a "two-way street" concept.

Early in 1975, the DoD began to coordinate efforts in support of NATO rationalization and standardization. By the end of 1975, OSD had written policy directives and guidance to the Services to support NATO standardization efforts.

In 1977, a new DoD Directive (DoDD 2010.6) on NATO standardization was published, directing all DoD Components to "include NATO standardization and interoperability goals as fundamental considerations in their development and procurement programs for both major and minor equipment items..." DoDD 2010.6 was revised and republished on March 5, 1980, to incorporate DoD's latest policies on RSI.

The United States has undertaken three major initiatives to achieve increased Alliance RSI:

- Establishment of general and reciprocal Memoranda of Understanding (MOUs) with NATO member nations and other allies. These

are intended to encourage bilateral arms cooperation and trade, establish regular review of armaments programs and trade, and make efficient use of Alliance resources through expanded competition

- Negotiation of dual production or coproduction of developed or nearly developed systems. Under this approach, a nation that has already developed a system that is valuable to the alliance would permit others to produce this system and thus avoid the undertaking of redundant developmental programs. Dual production programs can lead to the near-term introduction of weapon systems with the latest technology in NATO's deployed forces and a more efficient use of resources

- Creation of families of weapons (program packages) for systems not yet developed. Under this concept, participating NATO nations would reach early agreement on the responsibility for developing complementary weapon systems within a mission area. The approach is to examine the weapons that member nations plan to develop in the next few years, aggregate these weapons by mission area, and then coordinate the development of equipment when feasible.

Current law is firmly committed to NATO defense industrial cooperation. The "Nunn-Roth-Glenn" amendment to the 1983 Defense Appropriations Act asserts that a decision to coordinate more effectively the technological, industrial, and economic resources of NATO member countries will increase the efficiency and effectiveness of NATO military expenditures by providing a larger production base while eliminating unnecessary duplication of defense industrial efforts. The amendment directs the President to establish such a cooperative defense-industrial effort within Western Europe and between Western Europe and North America.

Senator Nunn's amendment to the 1986 Defense Authorizations bill provides for cooperative research and development projects that can assist the U.S. in achieving the larger national goal of NATO standardization and interoperability.

Reacting to this legislation, Deputy Secretary of Defense Taft issued a memorandum on 17 October 1985 requiring the secretaries of the military departments and the directors of the defense agencies to proceed with actions to fulfill the intent of the three authorization provisions. The first provision reserved $200 million of the RDT&E appropriation for cooperative NATO research and development programs. The second provision provided for consideration of NATO alternative systems at each step of the development and acquisition process. The third provision authorizes the obligation of up to $50 million for the side-by-side test and evaluation of NATO weapon systems, subsystems, and munitions with comparable items of United States manufacturers.

The insertion of these actions into the research and development process can undoubtedly benefit the U.S. defense posture. However, the implementing instructions do not imply that there was any consideration of foreign sourcing implications.

DEFENSE SYSTEMS MANAGEMENT COLLEGE

INDUSTRIAL PREPAREDNESS GUIDE

ISSUES AND ACTIONS

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1. TOPIC

Supporting The Manufacturing Planning Process

2. TOPIC SUMMARY

- ***The manufacturing plan is the foundation of the surge and mobilization production plans.***

- ***Not only should the manufacturing plan support the transition from development to production, it must also address the transition from the peacetime production rate to surge and mobilization production rates.***

3. REFERENCES

—DoDD 4245.6, "Defense Production Management

—DoDI 5000.2, "Defense Acquisition Program Procedures

—DoD Manufacturing Management Handbook for Program Managers

4. POINTS OF CONTACT

- TBD

5. ABBREVIATIONS

Dem/Val	Demonstration/Validation
FSP	Full-Scale Production
GFP	Government-Furnished Property
POM	Program Objective Memorandum
PRR	Production Readiness Review

6. DEFINITIONS

- ***Manufacturing Plan*** portrays the method of employing the facilities, tooling and personnel resources of the contractor and subcontractors.

- ***Manufacturing Strategy*** is a part of the program acquisition strategy that addresses the level of competition, availability of capacity, data rights for dual sourcing, and the application of manufacturing technology.

7. POLICY

- It is DoD policy to plan for production early in the acquisition process and to integrate acquisition actions to ensure an orderly transition from development to cost–effective rate production (DoDD 4245.6).

- The producibility of each system design concept shall be evaluated at the full–scale development (FSD) decision point to determine if the proposed system can be manufactured in compliance with the production cost and industrial base goals and thresholds (DoDD 4245.6).

8. DISCUSSION

Figure 14.1–1 lists the manufacturing activities that are described in Chapter Three of the DoD Manufacturing Management Handbook. Each of these activities has industrial preparedness implications which must be considered in order to achieve integration between industrial preparedness and the acquisition process. The discussion of this section is intended to be a companion to that of the manufacturing handbook.

CONCEPT EXPLORATION PHASE

Evaluate Production Feasibility – Production feasibility must not only be considered for peacetime production rates but also for surge and mobilization production rates. If this is to happen, production goals for surge and mobilization must be established prior to entering the concept development phase. Changes proposed to the Mission Need Statement (Sections 1.1, 1.2) will allow this to happen.

Assess Production Risks – There are two kinds of production risk. The first is the risk that the product cannot be produced at all. But even if this risk is obviated, there is a second risk that the production may not be producible in quantity. The inability to produce at mobilization rates may endanger more than performing thresholds and program schedules.

Concept Exploration Phase
- Evaluate Production Feasibility
- Assess Production Risks
- Identify Manufacturing Technology Needs
- Identify Manufacturing Cost
- Develop Manufacturing Strategy
- Identify Deficiencies in U.S. Industrial Base
- Determine Availability of Critical Materials
- Develop Contract Requirements for D/V Phase

Demonstration and Validation Phase
- Assess Potential Producibility of Competitive Designs
- Accomplish Production Risk Resolution
- Evaluate Producibility Criteria
- Plan for Achieving Producibility
- Assess Production Feasibility
- Complete Manufacturing Technology Developments
- Plan for Use of Competition in Production
- Develop Initial Manufacturing Plan
- Evaluate Long Lead Procurement Requirements
- Determine Need for Limited Production
- Develop Initial Manufacturing Cost Estimate
- Develop Production Readiness Review Plan
- Develop Contract Requirements for FSD Phase

Full Scale Development Phase
- Evaluate Producibility of Design
- Define Required Manufacturing Resources
- Develop Detailed Production Design
- Define and Proof Manufacturing Processes and Equipment
- Accomplish Producibility Engineering and Production Planning
- Develop Production Work Breakdown Structure
- Develop Manufacturing Cost Estimates
- Complete Manufacturing Plan
- Accomplish Production Readiness Review (PRRs)
- Develop Contract Requirements for Production Phase

Production and Deployment Phase
- Complete Initial Production Facilities
- Execute Manufacturing Program
- Integrate Spares Production
- Maintain Production Surveillance
- Implement Product Improvements
- Provide and Support Government Furnished Property
- Accomplish Value Engineering
- Accomplish Second Sourcing/Component Breakout
- Complete Industrial Preparedness Planning
- Plan for and Accomplish System Transition

Figure 14.1-1 Manufacturing Activities in the System Acquisition Process

Estimate Manufacturing Cost – Investment in mobilization capability is not required to achieve the peacetime buy and may not be required during a weapons life cycle, but surge of mobilization for any weapon system is always possible. When production acceleration is found to be necessary, it should be accomplished in the most expedient means possible. Since the cost of manufacturing is often synonymous with production efficiency, the cost of manufacturing at surge and mobilization rate should be evaluated for each proposed concept.

Develop Manufacturing Strategy – The Manufacturing Strategy is a subset of the acquisition strategy and the surge and mobilization manufacturing strategies are subsets of the overall manufacturing strategy. The level of competition cannot be properly determined without first determining the required mobilization base and the affordable warm peacetime base.

Identify Deficiencies in U.S. Industrial Base – Many weapons concepts are proposed as replacements to existing systems. As such, the industrial impediments will be quite similar. The industrial specialist must become more adept at using analogy to address the industrial deficiencies that might occur during mobilization. The potential impediment and the options for mitigation should be incorporated in the Milestone I Review and made part of the demonstration/validation process.

Determine Availability of Critical Materials – Sufficient quantities of critical materials may be available to support peacetime production rates but totally inadequate at mobilization rates. Rather than having to redesign a system if mobilization occurs, the prudent manager should investigate alternative solutions early in the design stage. If a critical material is identified as a production bottleneck, remedial actions need to be taken as early as possible.

Develop Contract Requirements for Demonstration and Validation Phase – Once a concept is developed, it should be evaluated against the warfighting mission need. In order to satisfy this need, mature systems have been assigned mobilization production targets. Each new system must also be evaluated for its ability to satisfy the mobilization mission need. During Dem/Val, the contractors should be expected to perform a force effectiveness evaluation that can result in refined surge and mobilization goals and thresholds.

DEMONSTRATION AND VALIDATION PHASE

Assess Potential Producibility of Competitive Designs – While producibility is defined as the measure of the relative ease of producing a product, there is nothing in the current literature that implies anything other than peacetime rates. It is appropriate to expand the definition and evaluation to consider producibility at peacetime, surge, and mobilization rates.

Accomplish Production Risk Resolution – The evaluation of production risk is highly dependent on the production definition and objectives. If the production concept incorporates production surge and mobilization, the risk assessment will follow appropriately.

Evaluate Producibility Criteria – The concept of industrial mobilization emphasizes the conversion of commercial industry to produce defense goods. DoD has generally concluded that the current defense production base is not sufficient to achieve mobilization production targets. In order to expedite the conversion process, general purpose tooling and programmable machine tools should be used in the production design whenever possible.

Plan for Achieving Producibility – The melding of producibility into the design effort is a contractor responsibility, but the contractor is directed by the program manager. The manager should ensure that the contractor includes the full spectrum of production in his plan.

Assess Production Feasibility – Because feasibility is fundamental to the Milestone II decision, it is important that surge and mobilization production rates are considered.

Complete Manufacturing Technology Developments – Many manufacturing technology projects that are intended to satisfy a peacetime production problem will also improve the surge and mobilization capability. By monitoring the manufacturing technology developments during the Dem/Val phase, the industrial specialists that support the program manager can determine the amount of increased capability and make recommendations for further action.

Plan for Use of Competition in Production – Competition must be planned in such a way that a stable production base is maintained. Full and open competition should certainly be the goal for the initial production contract. However, once those contractors are selected, then cost and quality should be achieved through other mechanisms that cause less disruption to long-term industrial viability.

Develop Initial Manufacturing Plan – Every manufacturing plan should consider the transition from peacetime production rates to surge or mobilization production rates. This means that surge and mobilization supplements should be prepared and the peacetime plan should show the transition can be accomplished with minimum disruption.

Evaluate Long Lead Procurement Requirements – Lead time is an important consideration of any production plan. It is especially important for surge

and mobilization plans. When evaluating lead times and their accompanying reduction measures, managers are reminded that the surge and mobilization production environments are different than that of peacetime. By understanding the manufacturing process for the prime and the subcontractors, lead time reducing assumptions can be made that reduce the inventory investment cost.

Determine Need for Limited Production – Since the decision to limit initial production is usually based on high technology and production risk, considerations to invest in surge or mobilization capacity should be delayed until the program is approved for full rate production.

Develop Initial Manufacturing Cost Estimate – The cost of manufacturing the program buy must be kept as low as possible. To accomplish this objective, all costs that are associated only with contingency capacity must be definitively separated and reported. This requires the manager and the contractor to clearly understand the different but supporting objectives of achieving lowest unit/life cycle cost in peacetime and rapid expansion to crisis production rates during a surge or mobilization.

Develop Production Readiness Review Plan – The Production Readiness Review is essential to evaluating the ability of a system to achieve its surge and mobilization objectives, and yet, there is rarely any consideration given to crisis production. One of the reasons for this is the absence of trained industrial specialists on the review team. The team director determines the membership, and he should be required to make industrial preparedness a prominent review issue.

Develop Contract Requirements for FSD Phase – During FSD, the contractor should be required to develop a production transition plan. This plan would detail the manufacturing requirements to achieve the surge and mobilization goals established at Milestone I and refined at Milestone II. An investment strategy should be included in the transition plan. This strategy would lay out a modular funding profile that will permit decisionmakers to incorporate investment in surge and mobilization capability into the PPBS.

FULL SCALE DEVELOPMENT PHASE

Evaluate Producibility of Design – As discussed earlier, producibility must extend beyond achievement of the peacetime production rate. Unless the manager consistently reminds the manufacturer that he must be prepared to accelerate production, those considerations will not become a facet of the design process.

Define Required Manufacturing Resources – The manufacturing resources required for the peacetime, surge, and mobilization production goals differ in both mix and amount. The correct detailing of these resources is essential for the development of the manufacturing plans and investment strategies.

Develop Detailed Production Design – In many cases, the so called "mobilization design" will not be needed if industrial preparedness is properly considered during concept exploration and Dem/Val. However, for some programs, performance goals and industrial preparedness production goals may not be mutually achievable. If this occurs, then design modifications should be prepared that will satisfy the mobilization mission need with the minimum performance degradation.

Define and Proof Manufacturing Processes and Equipment – The peacetime manufacturing process becomes the production baseline which is modified during the transition to crisis production. Production lead time is a design factor but some process times may be allowed to be longer than absolutely necessary due to cost considerations. A part of this activity should be the identification of lead time reduction (and capacity expansion) measures that can be instituted when time and quantity supersedes cost.

Accomplish Producibility Engineering and Production Planning – As stated before, this activity must include planning for the three production regimes (peacetime, surge, and mobilization). Producing a system for inventory is not the ultimate goal of the weapon system acquisition process. The ultimate goals is supplying forces engaged in combat with technically proficient weapons in sufficient quantities to permit mission accomplishment and to preserve national security.

Develop Production Work Breakdown Structure – The work breakdown structure is the skeleton on which all industrial base analysis is built. It shows the relationship of the various components. It defines the relationship of the component manufacturers. All knowledge about the subcontractor/vendor base must begin with the work breakdown structure.

Develop Manufacturing Cost Estimates – As these costs are improved, so should be the investment costs for surge and mobilization capacity.

Complete Manufacturing Plan – The initial manufacturing plan that was assembled in the previous phase is now finalized. This plan (with its transition supplements) can be evaluated for the decision to proceed with production and to invest in surge or mobilization capability.

Accomplish Production Readiness Reviews (PRRs) – The PRR determines if the system is ready for

efficient and economical rate production and should also determine if the system can meet the surge and mobilization production goals.

Develop Contract Requirements for Production Phase – During Milestone III, the surge/mobilization investment strategy developed during FSD should be considered for funding. The level of funding will impact the acquisition strategy and some of the manufacturing decisions.

PRODUCTION AND DEPLOYMENT PHASE

Complete Initial Production Facilities – The initial production facilities should be designed to produce the peacetime buy as cost-effectively as possible. However, the surge and mobilization production plans should show the facility changes that would be needed to meet the higher production rates. Some of those changes would be more economical to acquire if they were incorporated directly in the initial facility design. These changes may not directly increase capacity (and thereby create idle capacity) but may well reduce the lead time required to expand capacity in the future.

Execute Manufacturing Program – During production, the manager must always be prepared to implement production surge or mobilization. Any changes in design or manufacturing processes must be evaluated for their impact on the transition production plans.

Integrate Spares Production – The need for spares and repair parts will greatly increase during conflict. In many instances, a production surge may concentrate on individual components in order to keep fielded systems operational until the base can reach the desired end item production rates. This production requirement should be explicitly considered when assemblying the subcontractor/vendor network.

Maintain Production Surveillance – This activity is extremely important to industrial preparedness in that it becomes a primary mechanism for cost and quality control. This plus the use of multiyear contracting will help foster long-term industrial stability.

Implement Product Improvement – Not all product improvements will aid industrial preparedness. When an improvement could likely inhibit surge/mobilization capabilities, transition plans and investment strategies must be appropriately modified.

Provide and Support Government Furnished Property (GFP) – The recent emphasis on contractor furnished equipment is valid for peacetime production where the facilitization cost can be amortized over the life of the buy. However, requiring the contractor to provide the additional equipment needed to surge or mobilize increases unit cost and could dissuade some manufacturers from entering into a defense contract.

Accomplish Value Engineering – In most instances, value engineering is good for industrial preparedness. Some value engineering change proposals will cause a decrease in idle (surge) capacity. Others will improve the overall efficiency of the production process and reduce the administrative lead time. Even though the changes may not directly increase capacity, they will improve the peacetime base which will promote a stronger transition to crisis production.

Accomplish Second Sourcing/Component Breakout – The 1985 Joint Logistics Commanders' Study of the Effects of Foreign Dependency found that component breakout is the second greatest source of foreign dependency (the first is the failure of the program manager to address foreign sourcing during FSD and the initial production competition). The explanation of this finding is that component breakout is generally accomplished only from the viewpoint of cost savings.

The prime contractor is required to develop the subcontractor/vendor base with cost, quality, and schedule in mind. Before the program manager considers using other lower tier contractors to supply system components, he must consider the impact on the current contractor, the domestic industry, and the national economy.

Complete Industrial Preparedness Planning – One of the primary objectives of this handbook is to demonstrate that industrial preparedness planning cannot be initiated in the production phase. It must be considered in every acquisition phase and addressed at every milestone review. By Milestone III, the surge and mobilization production plans should be completed. During production and deployment, those plans should be kept current and reviewed periodically (every POM cycle) to determine what industrial preparedness investment may be desired.

Plan for and Accomplish System Transition – With the new Milestones IV and V that are defined in DoDI 5000.2, the program manager will retain control of the system longer than under the old system. Since the Milestone V decision encompasses system retirement and/or new start considerations, the transition plan must address the issue of facilities disposition/retention. Even after the end of active production, a weapon system may be designated as a mobilization item if it is deemed essential to the warfighting mission. If this is the case, production plans will need to be updated to reflect production buildup from a cold start. If the plan calls for production equipment to be retained, then funds for maintenance of facilities and/or equipment may have to be included in the budget.

APPENDIX A
ACRONYMS

A.

ACRONYMS

ADM ..... Acquisition Decision Memorandum
AMC ..... Army Materiel Command
APC ..... Armored Personnel Carrier
ASPPO ..... Armed Services Production Planning Officer
CICA ..... Competition in Contracting Act
CIL ..... Critical Items List
CINC ..... Commanders-In-Chief
COCO ..... Contractor-owned/Contractor-operated
DAB ..... Defense Acquisition Board
DAE ..... Defense Acquisition Executive
DCASMA ..... Defense Contract Administration Services Management Area
DCASR ..... Defense Contract Administration Services Review
DCP ..... Decision Coordinating Paper
DEFCON ..... Defense Conditions
DEM/VAL ..... Demonstration/Validation
DG ..... Defense Guidance
DID ..... Data Item Descriptions
DIBP ..... Direct Industrial Base Planning
DLA ..... Defense Logistics Agency
DLAM ..... Defense Logistics Agency Manual
DMPL ..... Depot Mobilization Planning List
DPA ..... Defense Production Act
DPAS ..... Defense Priorities and Allocation System
DRB ..... Defense Resources Board
DSMC ..... Defense Systems Management College
FMS ..... Foreign Military Sales
FSD ..... Full-scale Development
FSP ..... Full-scale Production
GFM ..... Government Furnished Material
GFP ..... Government-Furnished Property
GMR ..... Graduated Mobilization Response
GOCO ..... Government-owned/Contractor-operated
GOGO ..... Government-owned/Government-operated
IB ..... Industrial Base
ILS ..... Integrated Logistics Support

ILSMT ..... Integrated Logistics Support Management Team
INDCON ..... Industrial Alert Conditions
IP ..... Industrial Preparedness
IPE ..... Industry Plant Equipment
IPM ..... Industrial Preparedness Measure
IPP ..... Industrial Preparedness Planning
IPPP ..... Industrial Preparedness Planning Program
IPPL ..... Industrial Preparedness Planning List
IPR ..... Industrial Preparedness Representative
IRA ..... Industrial Responsiveness Analysis
ISP ..... Integrated Support Plan
JIT ..... Just In Time
JMPAB ..... Joint Material Priorities and Allocations Board
KAPP ..... Key Asset Protection Program
LCC ..... Life Cycle Cost
LSA ..... Logistic Support Analysis
MANTECH ..... Manufacturing Technology
MARAD ..... Maritime Administration
MMEC ..... Military Mission Essentiality Code
MNS ..... Mission Need Statement
MOU ..... Memorandum of Understanding
MRP ..... Manufacturing Resources Planning
MS ..... Milestone
MSR ..... Minimum Sustaining Rate
MUL ..... Master Urgency List
MYP ..... Multiyear Procurement
NADIBO ..... North American Industrial Base Organization
NATO ..... North Atlantic Treaty Organization
ODUSD(I&IP) ..... Office of the Deputy Under Secretary of Defense for Industrial and International Programs
OMB ..... Office of Management and Budget
OPE ..... Other Plant Equipment
OPT ..... Optimized Production Technology
OSD ..... Office of the Secretary of Defense
PBA ..... Production Base Analysis
PE ..... Plant Equipment
PEO ..... Program Executive Officer
PEP ..... Plant Equipment Package

PM ..... Program Manager
POM ..... Program Objective Memorandum
PRR ..... Production Readiness Review
R&D ..... Research and Development
R&S ..... Readiness and Sustainability
RDT&E ..... Research, Development, Test and Evaluation
RFP ..... Request for Proposal
RPEP ..... Register of Planned Emergency Producers
RSI ..... Rationalization, Standardization, and Interoperability
SAE ..... Service Acquisition Executive
SCP ..... System Concept Paper
SPA ..... Special Priorities Assistance
ST ..... Special Tooling
STE ..... Special Test Equipment
TOA ..... Total Obligational Authority
USD(A) ..... Under Secretary of Defense for Acquisition
VHSIC ..... Very High-speed Integrated Circuits
WBS ..... Work Breakdown Structure

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APPENDIX B
INDEX

INDEX

Acquisition Activity ..... 2.1-1, 2.1-3 to 2.1-8
Acquisition Cycle 1-1
Acquisition Decision Memorandum 1.1-3, 1.2-1
Acquisition Management 1-1
Acquisition Phases
  Concept Definition/Exploration Phase 1.1-3, 6.1-3, 14.1-1
  Demonstration/Validation Phase 1.1-4, 5.1-2, 14.1-3
  Full-Scale Development Phase 1.1-4, 4.1-1, 5.1-2, 6.1-3, 9.1-3, 14.1-4, 14.1-5
  Production Phase 1.1-5, 14.1-5
  Operational Readiness and Support Phase 1.1-5
Acquisition Process 1-1, 1-4, 1.1-1
Acquisition Strategy 1.1-3, 1.1-4, 3.1-1
ASPPO ..... 2-5, 4-1 to 10, **2.2-1**, 8.1-2, 8.2-1, 9.1-7
  List of ..... 2.2-3—17
Budget 1-2, 1-4
Buy America Act 13.1-3
Competition 2-1, **6.1-1**, 14.1-3
Competition in Contracting Act (CICA) 6.1-2
Concept Design 3-3
Congress 2-1
Contractor-Owned/Contractor-Operated (Co-Co) 3-6
Conversion 3-6
Costello, Dr. Robert B. 2.3-2
Critical Items List 4-1, 2.1-1, 2.5-2
Data Collection 2-1, 2-5, 9.1-1
DCASMA 2.2-1
DCASR 2.2-1
Decision Coordinating Paper (DCP) 1.1-2, 3.1-1, 5.1-3
DEFCON 5-2
Defense Acquisition Board ES-2, 2-1, 1,2-1
Defense Acquisition Executive 1.1-4, 1.2-1
Defense Guidance 4-1
Defense Industrial Base 3-5, 2.3-1, 6.1-1
Defense Priorities and Allocations System (DPAS) 2.2-2, 2.4-2

Bold type indicates primary reference.

Defense Production Act **2.4–1**, 2.4.1–1, 13.1–2
Title I (Priorities and Allocations) 2.4–2
Title III (Expansion of Production Capacity) 2.4–2, 2.4–3, **2.4.1–1**, 2.5–6
Title VII (Standby and Voluntary Agreements) 2.4–2, 2.4–3, 2.5–5
Defense Resources Board 4.1–1
Defense Systems Management College ES–2, 2–5, 1.2–2, 6.1–1
Deterrence ES–1, 2–2
DD Form 1519 ..... 4–2, 4–3, 4–4, 4–5, 4–6, 4–7
DD Form 1519–2 ..... 4–2, 4–3, 4–4, 4–5, 4–6, 9.1–9
DIBP 4–3
DID (DD Form 1664) 4–3, 2.2–2, 9.1–6
DI–P–7046 ..... 9.1–13
DI–P–1634 ..... 9.1.15
DLA 4–1
DLAM 4215.1 ..... 5.1–1
DLAM 8300.1 ..... 2.2–1
DoD 4005.3–H 2.2–1
DoD 4005.3–M 4–2, 2.1–1, 2.2–1, 2.5–1, 4.1–1, 4.1–3, 8.1–1, 9.1–1, 13.1–1
DoD 4245.7–M 1.1–1, 1.1–4
DoDD 2010.6 ..... 3–9, 13.1–1
DoDD 4005.1 ..... 2.1–1, 2.3–1, 2.5–1
DoDD 4105.62 ..... 8.1–1
DoDD 4245.6 ..... 1–4, 2.1–1, 2.3–1, 2.5–1, 14.1–1
DoDD 4275.5 ..... 5.1–1
DoDD 5000.1 .. 1–4, 2–1, 3–1, 1.1–1, 1.2–1, 1.2–2, 2.3–2, 2.5–1, 3.1–1, 6.1–1, 2.3–1, 13.1–1
DoDD 5000.39 ..... 12.1–1
DoDD 5000.40 ..... 12.1–1
DoDD 5000.45 ..... 1.1–1, 1.2–1
DoDI 4005.3 ..... 2.1–1.2.3–1, 2.5–1, 4.1–1, 13.1–1
DoDI 4400.1 ..... 2.4–1
DoDI 4410.3 ..... 2.4–1
DoDI 5000.2 ..... 1–4, 1.1–1, 1.1–3, 1.1–4, 1.2–1, 2.5–1, 3.1–1, 14.1–1
DoDI 5000.38 ..... 1–4, 2.1–1, 2.5–1
DoDI 5160.54 ..... 2.3–1, 2.3–2
DoD FAR Supplement, Part 7 ..... 3.1–1
DoD FAR Supplement 8.070 ..... 2.2–1, 6.1–1, 8.1–1, 8.2–1
DoD FAR Supplement 8.070g(4) 9.1–1

DoD FAR Supplement 15.612 ..... 8.1-1
DoD FAR Supplement 17.1 ..... 8.2-1
DoD FAR Supplement, Part 25 ..... 13.1-1
DSMC Acquisition Strategy Guide 3.1-1
DSMC Handbook "Establishing Competitive Production Sources" 6.1-1
DSMC DoD Manufacturing Management Handbook for Program Managers 4.1-1, 14.1-1
DUSD(I&IP) 4-1
Earthquake 2.3-2, 2.3-3, 2.4.1-1
Educational Orders 2.4-4
Exception 3 to CICA 6.1-3
FAR 6.202 ..... 2.3-1, 2.5-1, 6.1-1, 8.1-1
FAR 6.302-3 ..... 2.2-1, 2.3-1, 2.5-1, 6.1-1, 8.1-1
FAR 19.5 ..... 2.2-1
FAR Part 45 ..... 5.1-1
Force Structure 1-3
Foreign Dependency ..... 3-9, 2.5-1 , 13.1-2
FMS 13.1-3
Government Furnished Equipment 5.1-1
Government-Owned/Government-Operated (Go-Go) 3-6
Government-Owned/Contractor-Operated (Go-Co) 3-6
Graduated Mobilization Response 1-2, 5-1
IMIP
Industrial Alert Conditions (INDCONs) 5-1, 5-2, 5-3
Industrial Base 1-1, 2.3-1
Industrial Base Analysis 2-5
Industrial Base Capacity 3-4
Industrial Base Defense 3-5
Industrial Preparedness Planning List (IPPL) 4-1, 4-10, 8.1-2
Industrial Preparedness Measures 4.1-1, 9.1-3
Industrial Preparedness Representative (IPR) 4-1, 4-2
Industrial Responsiveness Analysis 1-3, 9.1-3
Industrial Specialist 2-5, 2.1-1
Integrated Logistics Support 1.1-4, 12.1-1
International Cooperation 13.1-1
Investment Strategy 1-4, 4.1-1

Joint Material Priorities and Allocations Board 4–10
Joint Staff 4–1
Key Assets Protection Program 2.3–1, 2.3–3
Leadtime 3–3
Life–of–Buy Procurement 2.5–3
Logistics 1–3
Logistics Component Breakout 1.1–5, 6.1–3, 14.1–5
Make/Buy Plan 3–3, 1.1–5
Manpower 3–8
MANTECH 2.5–4
Manufacturing Plan 1.1–4, **14.1–1**, 14.1–3, 14.1–4
Manufacturing Process 1–3, 3–1
Manufacturing Strategy 14.1–1
Master Urgency List (MUL) 2.4–1
Milestones 1–1, 2–2, 1.1–2
0 ..... 1.1–4, 1.2–1, 1.2–2
I 1.1–4, 1.2–1, 1.2–2, 1.2–4, 2.5–6, 3.1–2, 14.1–3, 14.1–4
II 1.1–3, 1.2–2, 1.2–5, 2.1–2, 2.5–7, 3.1–2, 14.1–3, 14.1–4
III 1.2–2, 1.2–5, 2.1–1, 2.5–7, 3.1–3, 5.1–2, 14.1–4, 14.1–5, 4.1–3
IV 1.2–2, 1.2–5, 3.1–3, 5.1–2, 14.1–5
V 1.2–2, 1.2–5, 3.1–3, 5.1–2, 14.1–5
Military services 4–1
MIL–STD–1388–1A 12.1–2
Minimum Sustaining Rate 8.1–1
Mission Area 3–1, 3–5
Mission Need Statement 1.1–1, 1.2–1, 3.1–1, 14.1–1
Mobilization ..... 1–1, 1–3, 1–4, 2–1, 2 –5, 3–2, 4–2, 5–3, 4.1–4, 9.1–5
Mobilization Acquisition Plan 3.1–7
Multiyear Procurement 1.1–5, 8.2–1
National Security Decision Directive #47 ..... 1.1–1
North American Defense Industrial Base 2.3–2
North Atlantic Treaty Organization (NATO) ..... 3–5, 2.3–1, 2.5–1, 13.1–2 to 5
Novick, David 1–2
Offsets 13.1–2
Phased Acquisition 1.1–5
Planned Producer 4–2, 8.1–1
Plant Equipment Package 5.1–2, 3
POM 1–2, 4.1–1, 8.1–1, 14.1–1

Procurement Strategy 1.1-5, 8.1-1
Production and Deployment 14.1-4
Production Base Analysis (PBA) 2.5-1, 4.1-1, 9.1-1
Production Capability 1-2, 1-3, 2-5
Production Functions 3-1
Production Impediments 1-3, 3-1
Production Improvements 1.1-5
Production Planning 1-2, 4-2, 2.1-1
Production Readiness Reviews 14.1-4
Production Requirements 1-2, 5-4, 1.1-1, 1.1-3, 2.1-1, 2.5-1
Program Baseline 1-3,2-1
Program Executive Officers 1.1-4, 1.2-1
Program Manager ES-2, 1-1, 2-1, 2-5, 3-1, 5-5, 1.1-4, 1.1-5, 1.2-1, 2.5-1, 3.1-1, 4.1-1
Program Stability 2-1
Readiness ES-1, 1-1, 1-2, 1-4
Reconstitution 1.2.1
Register of Planned Emergency Producers 4-2, 2.2-1
Requirements 1-2, 1.2-1, 5.3-4, 13.1-2
Rolling Inventory 2.5-3
RSI 3-9, 13.1-4
Service Acquisition Executive 1.1-4, 1.2-1
Special Priorities Assistance (SPA) 2.4-2
Special Studies 4-9
Standby Agreements 2.4-3
Stockpiles 1-2, 2.5-3
Subcontractors (see vendor/suppliers)
Surge 1-3, 1-4, 2-1, 2-5, 3-2, 4.1-3, 9.1-5
Sustainability ES-1 1-1, 1-2, 1-3
System Concept Paper 1.1-3, 1.2-1, 3.1-3, 3.1-1
Tooling and Test equipment 3-8
USD(A) 1.2-1, 2.4-1
Work Breakdown Structure 3-3
Vendor/Suppliers 2-2
Voluntary Agreements 2.4-3

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This guide is presented in two parts. Part I addresses Industrial Preparedness Concepts and Structure and Part II looks at Industrial Preparedness Issues and Actions. Part I is designed to provide the reader with essential background about Industrial Preparedness. Part II is designed to be a practical reference for all participants in the acquisition process. Together, the parts (1) create an awareness of the risk than may occur by ignoring industrial base implications of weapon system acquisition; (2) demonstrate that industrial base issues can be effectively evaluated by the program manager with minimum disruption to current operations; (3) describe the elements of an industrial base analysis process; and, (4) provide guidance for the integration of the analysis process in the various stages of system acquisition and development.

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Comment Sheet
for
Integrating Industrial Preparedness into the Acquisition Process

Because the challenges related to industrial preparedness are complex and some of the techniques described in this guide are new, revisions to this guide will become necessary as additional experience and data become available. A major consideration during the preparation of possible subsequent editions will be the comments, criticisms, or suggestions of you, the guide's users. Use the space below to let the editors know how you think this guide can be improved (e.g., recommended additions, deletions, corrections, or other suggestions). Attach additional sheets as necessary.

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